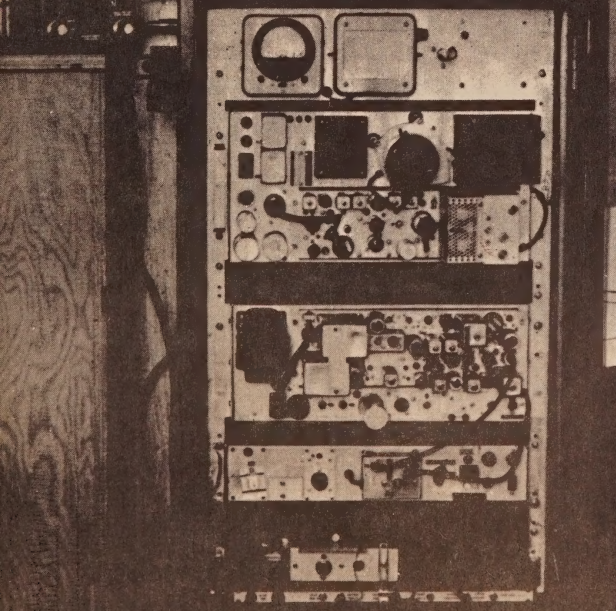
REPEATER JOURNAL

CAROLINAS - VIRGINIA REPEATER ASSN., INC

November, 1977 | Organized 1971 | Volume 6, No. 4

REPRESENTING VHF / UHF INTERESTS THROUGHOUT NORTH CAROLINA, SOUTH CAROLINA, & VIRGINIA



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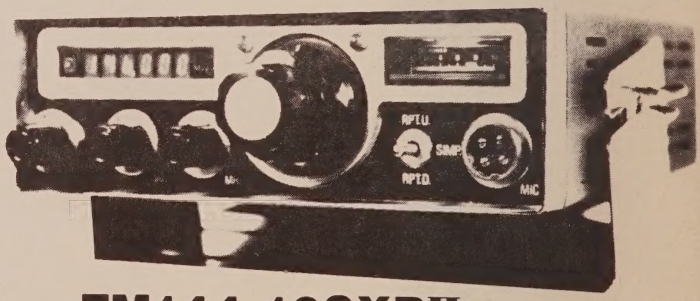

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NORTH CAROLINA SCM REPORT

--by Bill Parris, K4GHR

It is a pleasure to be writing a column for "THE REPEATER JOURNAL" as the North Carolina Sections Communications Manager (SCM). With the permission of the Editor, we hope it will become a regular column in the "JOURNAL".

VHF activity continues to expand in our section thereby providing numerous opportunities for you to become active in League affiliated activities and programs. If you are interested in traffic handling, VHF experimentation, emergency prepardness, or the ARRL Official Observer programs, contact me and I will be glad to show you how you can fit into this organization.

Although January may seem to be a long way off, I would encourage you to begin planning now for the 1978 Simulated Emergency Test (SET) to be held January 28-29, 1978. VHF, and two meters in particular, have become the prime frequencies for local area communications; Repeaters are becoming the focal points for county emergency plans and these plans should be tested during the SET. Likewise we should have extensive "back-up" plans to be followed if the repeater is taken out of service. Get with your County Emergency Coordinator (EC) now and formulate your plans for the weekend.

And speaking of county EC's -- do you know who your EC is? -- Included on the outside back cover is a list of all the North Carolina EC's and the counties for which they are responsible. Is he actively working with local emergency prepardness officials? Does he routinely review local plans with the Amateur clubs and related government officials? Do you know what your community really expects from the "Hams" if something happens? If you live in a county with only a few Amateurs, have plans been coordinated with surrounding counties to provide supplementary support? If your county does not have an EC, please contact me or Bill Finch, W4EHF, NC Section Emergency Coordinator (SEC) and we will work with you in getting someone appointed. I would like to thank the following Amateurs who have recently taken on the EC appointment in their areas: WA4UOC Wilkes, WB4ULP Surry, WD4FFX Iredell, and WB4KCS Forsyth. There are several coastal counties for which we desperately need EC's - including Brunswick, New Hanover, Pender, Beaufort, Hyde, Tyrell, and all of the counties on the north side of Albemarle Sound. If you know anyone in these areas who may be interested in getting involved in Emergency Prepardness, please let me or W4EHF know.

Another growing area of interest is with VHF Traffic Nets. There are several large VHF traffic nets already active in North Carolina with several more getting started. To coordinate this growth and to assist in providing guidance, John Neal, WB4VIM has been appointed VHF Phone Activities Manager (VHF PAM). John will monitor VHF net activities within the section and work with anyone who plans to start a new net. Likewise he will be working with Net Managers of existing nets to improve overall operations and to insure liason is provided between VHF Nets and the section nets on 75 meters. These VHF nets will be invaluable during emergency periods and serve as terrific training points for establishing proper traffic handling procedures and training of Net Control Stations. Let's support these nets and be sure to keep WB4VIM aware of VHF activities in your area.

I have had the opportunity to speak at the Forsyth ARC, Cabarrus ARC, Iredell County ARS, and the Salisbury Kiwanis Club during the past couple of months. It was indeed a pleasure to visit with these organizations and I would like to thank them for the opportunity to meet with them. I appreciate your continuing support as SCM and look forward to working with the various organizations affiliated with the CVRA.

ASSOCIATE MEMBERSHIP KEEPS GROWING MONTHLY

--by Lindsay, W4IZI
Assoc. Membership Chairman

The number of Associate Members in the CVRA still continues to grow by leaps and bounds! Just look at how the numbers keep going up: Sept. 1974 -- 293, Sept. 1975 -- 504, Sept. 1976 -- 916, and Sept. 1977 -- 1410.

The officers who attend the various hamfests seem to be signing up quite a few new members. However, most of the ones who join, either in person or by mail, have already been "sold" by another CVRA member who has shown them a copy of the "Journal" or answered the question "How can I find out where the repeaters are and what frequencies?" It's evident that the Editors and contributers to the "Journal" have made it a fine publication that seems to get better all the time, but as far as "spreading the word" goes, it's all you Associate members that seem to be doing the job.

Another factor which has helped swell the rolls has been those Clubs which have decided to have 100% CVRA membership and have the Treasurer pay all the member's dues at one time. This saves each member the bother of keeping up with his own membership and makes my job a bit easier. Of course, if the person is already a CVRA member, I just extend his membership for twelve months, so he loses nothing in the process.

I would like to thank all of the Associate Members who renew their memberships for more than one year. This certainly cuts down my load and leaves me a little more time to do some on-the-air hamming rather than doing so much "paper hamming". We even have one fellow who is paid up thru 1981! (Anyone care to try for 1984?!) Considering that Associate Membership was set at $2.00 per year in 1971 and hasn't changed in all that time, it seems safe to assume it will continue at that level for some time to come. Even though the cost of paper and postage has risen in that period, as the "Journal" has expanded so has the number of advertisers. They have been the main reason the membership fee has not risen, so when you have a need for some new gear, please remember these fine folks. We also have Ken Holliday, WA4DYY to thank for expanding our advertising. He has really been getting around to a lot of places and showing businesses that the "Journal" is a fine magazine going to an elite readership. But any help you can give him such as recommending a local firm as a prospect, please drop him a line.

As you might suspect, the largest number of Associate Members are in North Carolina. This is mostly because I can attend the various hamfests close to home but don't make the long trips out of the state very often. In no way do we want to "slight" South Carolina and Virginia! What we need are two or three fellows in each state who usually go to the hamfests or various club meetings to assist in the Associate Membership process. Their effort would be minimal and no paperwork to fill out. Anyone who would like to volunteer would receive from me some "Journals" and application blanks. Then at the various hamfests, he might set up a small corner of his flea-market table as a "CVRA booth" and just get new applicants to fill out the application, hand them a "Journal", and collect their dues. Later, he could forward the applications and a check for the dues to me. That's all! I will take care of all the other paperwork. So if anyone would like to become a "popular spot" at a hamfest, drop me a line.

Finally, a comment on the entire membership. The CVRA has a fine reputation which goes far beyond the three states. This is partly due to the time and effort on the part of the officers and "Journal" staff. But it is also partly due to the reputation

SEE - Growing Monthly Page 47

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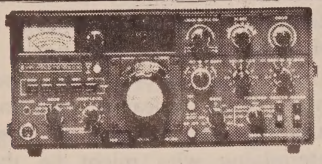

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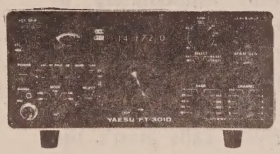

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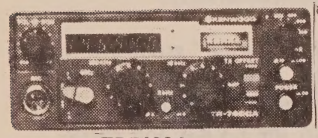

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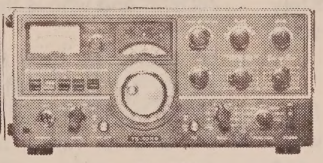

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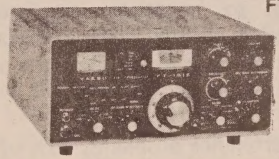

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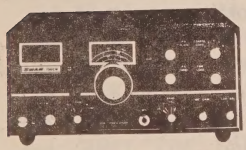
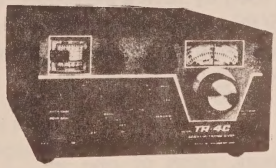


750CW



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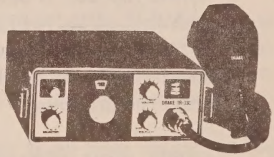

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As interference becomes a thing on some repeaters, telephone calls, and nasty letters emerge as a form of trying to get the problem solved. Diplomatically, we know this just "ain't" the way to do it. Any repeater owners who experience problems of interference, whether it be a new repeater on the same frequency (coordinated or uncoordinated), should make an attempt immediately to contact the owners of the interfering repeater and in a diplomatic way, talk to him in PERSON through a prearranged meeting, or a special trip to the owners home. Letters and phone calls aren't the way to negotiate interference problems. Letting repeater users complain is definitely not the way to go. Only the owners can solve the problems.

Interference problems, 99% of the time from repeater users, generally someone in between the two repeaters in question, using one, and getting into the other one. Sometimes it's an isolated case of one operator. This problem could be solved by the repeater owner whose repeater is being used by such a person, to VISIT HIM IN PERSON, and suggest means of working the repeater with less power, or smaller antenna systems. Generally this will solve the problem.

Lately what is happening, users of one repeater mouth off on the air about the other repeater users who are interfering with the home repeater. The word gets back and here we have a squabble. The owners are drawn into the squabble and ungentlemanly conduct ensues.

I was privileged to sit in on a CVRA coordinated arbitration between two repeaters. Owners or club representatives were present, along with CVRA officials. After some time of discussion, one group agreed to move off the frequency, the OTHER group agreed to assist in the technical part of the move with their technical staff. If these two groups follow through their promises to each other and the CVRA, EVERYONE will benefit. . . . . the owners, the CVRA. . . . . and especially the users of both machines.

Occasionally the CVRA is called in to assist in arbitration of two repeaters which are interference problems with each other. The CVRA cannot take sides. It can only look at records, as to who was on the frequency first, has there been a change in location of either repeater, has power been increased or range increased of either repeater, were both repeaters coordinated? These questions are a basis of judgment when determining who might be the interferer and who is the interferee.

Of course we have the "pirate" groups, who refuse to coordinate, who could care less about interference. This is very damaging to the amateur ranks, to the CVRA and everyone concerned. These people cannot be talked to, but sooner or later, someday, they will see the light. . . . . their malicious interference will catch up with them and they'll be left holding an interfering, uncoordinated repeater with no one using it. The CVRA cannot TELL these people what to do, we can only recommend. NO ONE owns any frequency in the amateur spectrum, and NO ONE has absolute control over any frequency.

Inadvertently, the only solution to many interference problems, is for one repeater to shift frequency. There should be no problem in this. With todays synthesized equipment on the market, and the inexpensive price of crystals, no repeater owner should hesitate one moment to change frequencies of his machine to prevent problems (if he is the cause of that problem). Split/splits are all that's left in many areas. Owners have a horror of going to a split/split frequency. This of course is pure bunk. Two years ago there was a horror against taking a 147 mhz portion channel. Five years ago there was a horror

SEE - Cool It Page 51

--by Watson, WB4EXW

This month TT features an article written by W.O. (Connie) Conrad, K4BE. For a simple and quite accurate method of adjusting the deviation of one's FM transmitter, it probably can't be beaten. His method is based on the use of the Bessel function. Without delving into the mathematics, I will attempt to briefly explain what happens to show where Connie obtains two constants which are used in his method of setting deviation. If we could see the display of an FM transmitter's output that is modulated by a constant audio tone on a spectrum analyzer, we would find that there are points where the carrier output of the transmitter is zero. By using a mathematical relationship called the Bessel function and modulating our FM transmitter with certain audio frequencies we can determine where the carrier output goes to zero and get an indication of our deviation. The constants 2.4 and 5.52 that are used in the following article come from the Bessel function chart. For additional reading on how to use the Bessel function in setting your deviation consult the chapters on FM in the ARRL Handbook.

Measuring Frequency Deviation of FM Transceivers the Easy Way

--by W.O. Conrad, K4BE

I would guess that I have built every possible unit described in the various periodicals to check the deviation of FM Transceivers, and with no great success. The classical way, of course, is to use a spectrum analyzer, or some other expensive piece of equipment. But most hams cannot afford this type of gear. There must be an easier way.

The classical way to adjust deviation in an FM Transceiver is to observe the carrier on a Spectrum Analyzer, then modulate the transmitter with a predetermined audio frequency. When the deviation control is adjusted until the carrier is nulled out, (first null point) you can consult the Bessel function chart and determine the deviation. But for those who prefer not to use the Bessel charts there is a simple formula that can be used. It might not satisfy the purist but even he couldn't argue too loudly. For example if you used an audio frequency of 2.1 khz, (2100 hertz) you would multiply the 2.1 times 2.4 and the deviation would be 5.04 khz. Just a word of caution however; you would have to make sure you had the first null point. If you were to go past the first null point and go to the second null point with the 2100 hertz audio signal modulating the transmitter then the deviation would be 2.1 times 5.52 or 11.65 khz deviation. The adjustments to the first null point is easier and more reliable. One word of caution, the audio oscillator used to modulate the FM transceiver must be a pure sine wave, otherwise the measurements could be unreliable. Now just how can we do this with ordinary ham equipment?

Let's use just what we can find around most ham shacks or what any resourceful ham could scrounge. Refer to the block diagram and you will see that the items needed are:

1. A good low band ham receiver with a sharp (cw) filter.
2. A two meter converter to work into the low bander.
3. An audio oscillator, its' calibration should be fairly accurate and if it is not then a counter should be used.
4. A volume control and switch to control the output of the audio oscillator.

If you will arrange these items as shown in the block diagram, you will be ready to start your deviation checks.

After everything has been hooked up and warmed up to stabilize, you start by keying the FM rig and finding the signal on the low bander. My converter happens to work into the ten meter band. After you find the

Cont. Page 50

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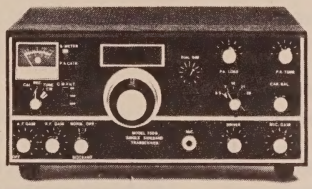

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CVRA NOMINATING COMMITTEE OFFERS WELL BALANCED SLATE

-by Ed Buffington, W4VGZ

The Nominating Committee named by President Ed Alderman at the Shelby CVRA Annual meeting has announced its slate of officers to present to Full Members for their approval. The committee, directed by Ed Buffington, W4VGZ represented North Carolina. Also on the committee were Bob Southworth of Virginia and Jerry Garrett of South Carolina.

Presidential nominations included two names: Danny Hampton, K4ITL of Raleigh and Charles Durst, WA4WTX of Durham. For Vice-President the committee recommends John Fried, W4WWD of Farmington, Va. Carl Smith, N4AA of Asheville was nominated for the post of Treasurer and Paul Marsha, K4AVU of Columbia, S.C. for Secretary.

Buffington, chairman of the committee has notified the President of the groups nominations. President Alderman will notify Secretary Carter Cogle who will make out ballots to be mailed to every Full Member repeater group of the CVRA. Some 108 groups in the three States are eligible to vote. Ballots must be returned to the secretary and newly elected officers will take over January 1, 1978.

Outgoing officers include, Ed Alderman, WA4PEN, Pres., Calvin Dempsey WA4UQC of Tarboro, N.C., VP., Al Ross, K4CAW of Greensboro, Treasurer, and Carter Cogle, K4ARO of Petersburg,Va.

The two nominees for president are both well-known, well-liked amateurs. Both have been dedicated members of the CVRA, dating back to the early days of the N.C. FM Repeater Association. Durst is trustee of the Durham FM Assn. repeaters, and Hampton is trustee and owner of the Raleigh 28-88 repeater. Durst was former Frequency Coordinator for the CVRA for several years and presently North Carolina State Director. Hampton is quite active in designing a linking system for repeaters. His technical knowledge has been quite helpful to other repeater owners who have over the years sought his assistance.

Both men qualify to hold the office of President of the CVRA. The membership through their votes will pick the man who must lead the organization for the next two years.

HELP KEEP AMATEUR RADIO ALIVE

"Ragchewing" won't do it. Talking only on technical subjects won't do it. And just making social autopatches won't do it . but. . PUBLIC SERVICE WILL DO IT! Remember, Amateur Radio will be on trial before the world in 1979 at the World Administrative Radio Conference. If they can point to a proud record of serving our nation, yesterday and today and even tomorrow, with such services as flood disaster communications, the Eye Bank net, Skywarn, and so forth, the years ahead may look favorable upon preserving Amateur Radio.

On the other hand, if our representatives at the Conference have but little to point with pride to as our record of "people services," then we are truly "in a heap of trouble" before the eyes of the world.

Please make some public service activity a regular part of what you put into Amateur Radio; you'll be proud that you did! Meanwhile, remember; the world IS listening to Amateur Radio. **(Lake Erie ARA Newsletter)**

FROM MURPHY TO MANTEO ON TWO

-by Wayne C. Williams, K4MOB

It was a carefully planned exercise. Herb Lacey, N4UE wrote letters to Bill Williams, W4PCN in Manteo (N.C.), and Jim Foust, K4AIH in Murphy (N.C.) outlining plans to see just how long it would take to relay a formal piece of traffic from Murphy to Manteo, (495 miles), and another from Manteo to Murphy via VHF repeaters. Statewide publicity supported the plan, originating out of the N.C. Emergency Coordinators Net. The only unknown piece of information . . . . how long would it take?

October 18, the N.C. Amateurs found out. 34 minutes from Murphy to Manteo, and11 hour from Manteo to Murpby. The two hams involved, originated their messages, dated and timed them Oct. 18, 2030 local time, and sent them on their way through local repeaters. At the same time, the Murphy to Manteo Tracking Net was instituted on 3923 khz. for tracking the messages being routed, but not assisting in any way. Tracking was done by monitoring repeaters and reporting in on 3923 as the message cleared the repeater.

After the messages were reported received by the addressees, an air of jubilation moved over the 3923 net, many expressing surprise, but all quite excited and pleased at the response of their 2-meter comrades. Herb Lacey stated he was delighted, and very pleased. Some of the "old" 2-meter traffic handlers were heard to chuckle, knowing well the capabilities of VHF repeaters.

Tracking the messages while enroute was done well on 3923, although at times got confusing when the messages hopped from repeater to repeater faster than reports were reaching the Net.

The Murphy to Manteo message moved rapidly and smoothly, originating on the Franklin (N.C.) repeater, then to Mt. Pisgah, Morganton, Roaring Gap, Greensboro, Durham (through a 220 repeater), Raleigh, Grifton and Elizabeth City. Some 10 Amateurs relayed the traffic eastward through 9 repeaters. As best could be confirmed over the 3923 net, the traffic left K4AIH in Murphy, was picked up by WA4NTY, relayed on to: K4AI, WB4UDS, WB4EZR, WA4YAZ, K4MOB, WB4DBB, WB4DAR and finally to W4PCN.

The Manteo traffic originated by W4PCN on its treck westward got through Raleigh (N.C.) and then (unofficially) wound up in Virginia for a short period, later returning to Raleigh, where it then made a speedy trip westward. As best as could be determined, W4PCN passed his message K4YU on the Elizabeth City repeater, then on to: WA4JZX, K4JA, WD4EYU, WB4SZZ, WB4DAR, WA4YAZ, WB4EZR, WB4UDS, K4HF and K4AIH.

Two-meters for years has proven to be an excellent vehicle in the North Carolina area for Statewide traffic handling on various nets. The Murphy to Manteo exercise with the (low-band) N.C. Traffic net proved it to the low-band traffic handlers. Still the question remains, how well can unannounced traffic be moved across the State, or into Virginia, or South Carolina without waiting for normally scheduled 2-meter nets? We may find out soon. . . . . .

Several repeater owners have been discussing statewide repeater linking for months. Linking is already being conducted in several areas of the State. The future of 2-meters (and 220) for Statewide relay is on the horizon . . . . . someday it will be common occurrence.

Committee Defined

A collection of the unfit chosen from the unwilling by the incompetent to do the unnecessary.

A group of people who, individually, can do nothing, but collectively can meet and decide that nothing can be done.

A group which succeeds in getting something done when, and only when, it consists of three members, one of whom happens to be sick and another absent.

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NORTH CAROLINA NEWS

Fayetteville . . . . . .Gary L. Long, WB4BSB, former trustee for WR4ANN (31-91) has been transferred to Muskogee, Okla. W.J. "Dub" Yarborough is the new trustee of the machine. The group reports Gary a very capable and dedicated Amateur, will be very much missed in the Fayetteville club. (W4VTP)

Statesville . . . . . .Due to tremendous interference from the Abington 01-61 repeater, (not coordinated thru CVRA) Statesville has been forced to move off of 01-61. According to trustee, Don Summers, K4PAJ, the WR4AZI machine will move to 085-685 and be on the air with their new frequency by press time. (Early November) The repeater is located 100 feet HAAT on a local Government tower in Statesville, some 1023 feet above sea level. The VHF Engineering transmitter, feeding a North Shore duplexer into a Hustler antenna has 32 watts E.R.P. The repeater is controlled by UHF link and operated 24-hours per day. Plans are to increase E.R.P. and move higher on the tower in the future. Coverage extends across the 9 county area surrounding Tredell and cities of Winston-Salem, Greensboro, Lexington, Charlotte, Hickory and Lenoir. Autopatch facilities are planned in the future. (Don, K4PAJ)

Morganton . . . . . .The Morganton ARC, operators of the 75-15 repeater report the machine doing well in the Western part of the State. Former owners of WR4AQI, WB4UDS, WB4HIE, and K4AI turned the machine over to the club recently to assume operation. The VHF Engineering repeater is located on High-Peak Mt. near Drexel in Burke County, some 2180 feet above sea level. The antenna system is a Newtronics co-linear on a 100 foot tower. H.A.A.T. is 980 feet. The repeater has a homebrew 6 cavity duplexer with an E.R.P. of 80 watts. Mobile coverage is about 70 miles. Plan for the future include an autopatch, and installation of hardline to replace present coax. The Morganton ARC meets the 1st Monday of each month and sponsors a net every Wednesday night at 2100 on 75-15. (Joe, K4AI)

Roaring Gap . . . . . .The Roaring Gap, 22-82 repeater was off the air for a couple of weeks in October after being struck by lightning. Damage was reported extensive, but the repeater has now been repaired. It is not known whether the existing machine was fixed, or the newly planned solid-state equipment has been placed in service. (K4MOB)

(Editor's Note) When reading the Federal Register announcing the Docket approval, and comparing our other information, there seems to be a discrepancy as to the status of Repeater applications filed with the Commission, prior to release of the Docket. The Federal Register reads: "We find that the public interest will be best served if the applications for new repeater station licences presently on file are dismissed, and we hereby do so. Pending applications for renewed repeater station licenses or modified repeater station licenses will be processed, however." As you read the story, our earlier information supplied by the ARRL did not mention the part about applications for renewed and modified licenses, being acted upon.

See Simplification Page 23

NORTH CAROLINA NEWS

Greensboro . . . . . .The 63-03, WR4AWZ repeater in Greensboro is now owned by Elliott, WB4CFK, Larry, WD4CWC and Jim, WD4AIC. The machine located on the Towers Apartments in the city gives full coverage mobile throughout Guilford County. The Sensicon A Motorola feeds two Ringo Ranger antennas, separated 30 feet vertically and 25 feet horizontally with 60 watts. The repeater is equipped with autopatch facilities. (WD4CWC)

Greensboro . . . . . .The Greensboro ARC operators of WR4BBE after experiencing mutual interference with Benson plans to move to 01-61 on a temporary basis for tests. The CVRA recommended the group go to a permanent split/split because of possible interference with Lynchburg, Va. on 01-61, and interference from Abington, Va., however, the group voted to go the 01-61 route regardless of recommendations. They note they have not relinquished the 87-27 pair during tests on 01-61. (K4MOB, K4SNI)

Sauratown Mtn. . . . . . .Tommy, WB4SNA reports to the Journal the 3rd planned repeater for the Sauratown Mtn. complex. The old Mocksville 6-meter repeater, operating on 52.17-53.17 is being rebuilt and will be placed on the Mountain in the future, joining the 223.28-224.88 1½ meter repeater already on the air, provided by Wayne, K4MOB for the group. Beachum, W4RXG who owns the site, plans a new solid state 450 mhz repeater at the same location. The existing 220 mhz repeater with temporary antenna system is providing good mobile coverage for a 75 mile radius, and base station coverage in excess of 125 miles. A microprocessor being completed to control all three repeaters, and additional user facilities, such as linking for the future. Plans for a 60 foot tower to be completed in early November, will run the 220 repeater. The existing repeater antenna is located at tree-top level, using a Ringo Ranger. A four-pole dipole array will go on the tower. (K4MOB, WB4SNA, W4RXG)

Franklin . . . . . .A new 2-meter repeater is on the air at Franklin, the far Western part of the State. The machine, operating on 96-36 will be moved in the near future to Cowee Bald (Mt.) 10 miles north of Franklin at a height of 5085 feet. The repeater using a temporary call is made up of a Motorola, Waycomm duplexer and 6 db Hustler antenna. The repeater is sponsored by the Franklin ARC. (Tnx Bernie, W4RQP)

Jo Anna Bald (Mt.) . . . . . .A new repeater is planned for the Jo Anna Bald near Robbinsville, in Graham county, far Western portion of the State. No frequency has been chosen as of yet, but a 147 mhz. split/split is being considered. (Tnx Bernie, W4RQP)

Eden. . . . . .The 84-24 repeater in Eden is working well according to WA4ACP, Kerry. The machine provides excellent mobile coverage in low terrain areas in and around Eden. Outlying areas are also well covered. New control circuitry and cw identifier. The RCA Fleetline equipment is feeding 35 watts into a six cavity duplexer and connected to a 4-pole dipole array antenna by hardline. Trustee for WR4AZX is Kerry James, WA4ACP and the machine owners are members of the CVRA. 24-hour operation is in effect. (WA4ACP)

Rocky Mount. . . . . .A club has been formed to operate the Rocky Mount 72-12 repeater. The Rocky Mount ARS meets 3rd Thursday at 1900 at Farmer's Restaurant in Sharpsburg. A repeater net is held each Thursday night on 72-12 at 2030. Joe, K4GWU reports the machine is operating well, with a new autopatch added, standard access .

NORTH CAROLINA NEWS

Asheville . . . . . .A College Traffic Net has been started on the Mt. Pisgah, 16-76 repeater. The net designed to pass traffic for college students in the area to back home will be held each Sunday night at 2130.

Lumberton. . . . . .The 96-36 repeater, WR4BDQ is giving excellent coverage into the counties of Robeson, Blade , Columbus, and Scotland, The repeater which went into full service in July of this year is a member of the CVRA. The repeater is a VHF Engineering machine, feeding a WACOM duplexer into a DB Products antenna. It is located 3 miles south of Lumberton on WAGR Radio Tower, 250 feet HAAT. Autopatch facilities are planned. Trustee is Julius Scott, WA4MXZ with Nyles McKeithan, WB4KHJ, 2nd rep to the CVRA. (Tnx WA4MXZ)

Smithfield . . . . . .The 37-97, WR4BBO repeater in Smithfield has been providing excellent coverage for the area for the past 5 months. The machine, located 2 miles west of Smithfield on U.S. 70, is a 60-watt Motorola, feeding a Phelps Dodge duplexer and Stationmaster, 320 feet above sea level, 170 feet HAAT, with 200 watts E.R.P. The repeater is sponsored by the Johnston Amateur Repeater Society, William Grimes, WB4AXH, trustee. The group is a full member of the CVRA. Autopatch facilities are under construction.

Maco. . . . . .A local type repeater is in the planning stages in Maco on the Eastern Coast near Wilmington. The owners of the repeater, from Wilmington, coordinated the frequency of 66-06 with the CVRA Frequency Coordinating Committee. The repeater will have directional antennas beaming East and will be an Autopatch machine. Completion and on-air date is unknown. (WA4WTX, Charlie)

Winston-Salem . . . . . .The 223.10-224.70 Teletype repeater in Winston-Salem is on the air for testing purposes. The machine is a converted Clegg FM-76 with a Phelps-Dodge Duplexer. When the machine is moved to the site of the K4BE 04-64 repeater atop the Baptist Hospital in the city, it will utilize a 4-bay dipole array antenna system. The repeater under the call of K4BE will be used solely for Teletype transmissions, with teletype tones required to access. The machine should be in its final place during November. (W4HG, Wayne)

High Point . . . . . .A 1½ meter repeater is in the planning stages in High Point. K4AZA, F.L. has coordinated 222.32-223.92 as a frequency for the proposed repeater to operate in conjunction with the 40-00 WR4ADT 2-meter machine. The new 220 repeater will reportedly be used in linking the 450 mhz - 2 meter machines. (WA4YHH, Jim)

Winston-Salem . . . . . .WR4ARD, 04-64 in the city has recently put in a new Phelps Dodge Duplexer and new VHF Engineering Transmitter, plus Vanguard preamp on the Standard receiver. Coverage for the repeater has improved. The amplifier being rebuilt will be added to the line soon 24 hour operation continues for 04-64, with full Autopatch facilities. (Tnx, Wayne, W4HG)

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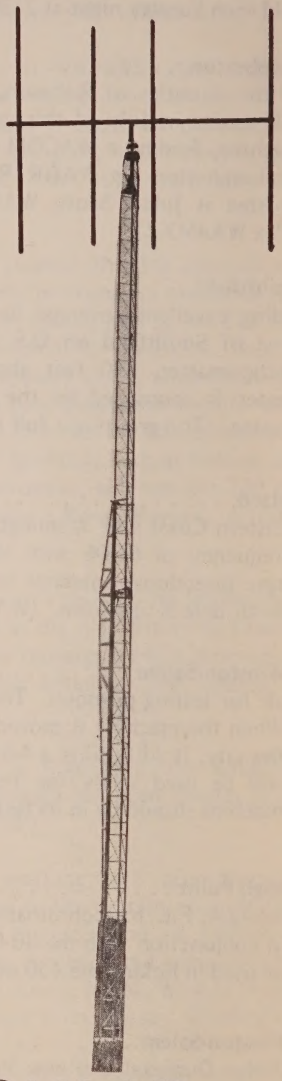

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NORTH CAROLINA NEWS

Kernersville . . . . . .The 915-315 repeater, temporarily located in Winston-Salem was moved to its permanent site atop a 125 foot water tower in Kernersville, 10 miles East of Winston in August. The repeater still waiting for its permanent call presently is using WR4AJD. Excellent mobile coverage for the machine extends from Statesville to the West to East of Burlington, as well as north and south. This repeater is now listed under Kernersville in the index.

Jacksonville . . . . . .A lightning strike at the WR4AJG repeater site caused some damage Sept. 21 during a bad electrical storm. An all out effort by club members put the 40-00 repeater back on the air within 12 hours. WR4AJG continues to provide good coverage to Onslow and surrounding counties (WA4VBC)

Waynesville . . . . . .A new repeater is under construction in Waynesville, sponsored by the Haywood County Repeater Assn., Inc. The machine to operate on 87-27 will serve Haywood and Buncombe counties, and cities of Asheville, Clyde, Canton and Waynesville. Operation will be 24 hours a day. The repeater, a Spectrum Communications unit will feed 30 watts to a Phelps Dodge Stationmaster, installed atop a building of Haywood Technical Institute. The location is 2985 feet above sea level, 204 feet below average terrain. Trustee for the new machine is James Leonard W4FPS. The group joined the CVRA.

Durham. . . . . .The Triangle Radio Alert Network assumed ownership and control of the 34-94 repeater in Durham. The new group immediately joined the CVRA. Harry Prout, WA4BFT, trustee of the machine, WR4BEK said the machine will continue to give good service to the Durham area. Tone access has been lifted from the machine except during periods of extreme interference. The machine has autopatch with a 3-minute timer, and operates 24 hours a day. The repeater, a G.E. Master Pro, feeds a Phelps Dodge Stationmaster antenna 600 feet above sea level, 550 feet HAAT on the S.E. side of Durham. (WA4BFT)

Raleigh . . . . . .WA4PEN reports his 6-meter repeater now under final stages of construction will operate on 52.25/53.25 and be on 24 hours a day. Presently it is located at Ed's home, but will be moved in the future to a split site location using UHF linking. Full service of the machine is expected in early November. The machine is constructed from G.E. Master Pro strips. Antenna system will be two balun fed dipoles. The repeater has joined the CVRA. (WA4PEN)

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VIRGINIA NEWS

Hampton . . . . . .WR4AFT, 34-94 was taken off the air for repairs in early October. It is assumed repairs will be completed by publication time of the Journal. The Hampton Roads Emergency Net is no longer in operation. (WA4KXV, Wallace)

VIRGINIA NEWS

Norfolk . . . . . .Bill, WB4OSQ reports his 10-70 repeater is off the air at this time. He is in the process of searching for a new site for the WR4ANT machine. Bill is also building up a new control system to improve operation of the machine when it returns to the air at a new site. (WA4KXV, Wallace)

Norfolk . . . . . .The Army Corps of Engineers is installing a 6-meter antenna on Fort Norfolk on Hampton Blvd. A new repeater should be in operation early this month. The Tidewater Amateur Radio Club will operate the machine on 53.525-52.525 (Not a standard CVRA recommended 6-meter channel.) Trustee for WR4ATK will be Stu, WB4YKK. (WA4KXV, K4MOB)

High Knob . . . . . .A new repeater is planned near Norton and Wise, Va. To operate on 81-21, the machine will be situated at the 4200 foot peak of High Knob. Good coverage is expected into Tennessee, Western Va. and occasionally Kentucky. (Bob, K4SE)

Brumley Mt.. . . . . .The WR4ATJ 01-61 repeater near Abington, Va. reports some 26 different states who have worked the "Virginia Machine". The fantastic coverage machine (which was not coordinated through CVRA, nor condoned by the CVRA) has become one of the best DX working machines on the East coast. Unfortunately its extensive coverage and heavy use has forced the Statesville (N.C.) group to move off 01-61. Lynchburg, Va. is also receiving interference from Abington, as some interference noted with the London, Ky., WR4AOR. Knoxville, Tn. is also receiving interference. (K4SE & K4CAW, W4PAJ)

Richmond . . . . . .The Richmond WR4ACW, 28-88 repeater is now functional with the new solid state G.E. Master II. More features are planned for this modern machine in the future when microprocessor facilities are incorporated. (Carter, K4ARO)

Petersburg . . . . . .A new 6-meter repeater is under construction for the area. It will be operating on the CVRA coordinated frequencies of 52.55-53.55. Sam Blomberg, WA4QWT and Jim Weatherington, W4LGZ are working on the new machine. Elsewhere in Petersburg . . . . . the 99-39, WR4AWC repeater is temporarily off the air for rebuilding. The 90-30, WR4ATB continues to provide good coverage. WA4QWT also operates a 2-meter repeater in Petersburg on the frequencies of 78-18. (Carter, K4ARO)

Chesapeake . . . . . .The 19-79, WR4ACN repeater was struck by lightning recently and knocked off the air. The antenna had a hole about one-half inch in diameter about 1/3 up from the base. Fortunately group had a spare antenna already tuned and made quick work of climbing the tower and getting the repeater back on the air. The Hampton Roads Radio Assn. is getting a new club trustee, Karl, WA4SBC. (WA4KXV, RF-79 News)

Portsmouth . . . . . .The Portsmouth Amateur Radio Club has put together a repeater for the city, through action of Herbert Simpson, coordinater of CD. The machine will operate on 25-85. The new machine will have emergency generator facilities and should be on the air in early November. Autopatch facilities are not in the early plans of the repeater. The Portsmouth ARC through research by the ARRL was found to have been organized in 1922.

VIRGINIA NEWS

Martinsville . . . . . .The Patrick Henry Amateur Radio Assn. is planning a repeater for the Martinsville, Va. area soon. The group reports it will be located at the WMVA radio station. Funds are being gathered by the group and purchase of a repeater will be made soon. The group plans on frequency coordination with the CVRA. The WMVA location will give the machine extensive coverage in Southern Virginia and Northern N.C. (WB4RAF, WA4SUB)

Roanoke . . . . . .A new 450 mhz. repeater is under construction on Poor Mt., location of the Roanoke 385-985 2-meter repeater. The machine will have 40 watts into a 5.2 db gain antenna. The machine will operate442.5-447.5 mhz. The machine is sponsored by the Roanoke Valley ARC. (Al, W4PDL)

Galax . . . . . .The Briarpatch ARC, owners of the Briarpatch Mt. 69-09 repeater is in the process of placing another repeater in Galax at the Twin County Community Hospital building. The machine is to operate on 34-94 and will be a local coverage machine to be used mainly for emergency communications in times of need for the hospital. (Phil WA4SIW)

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TENNESSEE NEWS

Holston Mtn. . . . . . .The 60-00 repeater, WR4AXQ is experiencing intermod problems, but the difficulty is being worked on. The intermod seems to get into the preamp. Once the problems are solved, the machine is expected to have extensive coverage. (Bob K4SE)

Kingsport. . . . . . .The KARC, 37-97, WR4AGE repeater is now on Bays Mt. and after several weeks downtown, is back in full swing and doing very well. The repeater located on the WKPT-FM site was coordinated with cooperation of the CVRA. Promised autopatch is slow in materializing but is being worked on. (Bob, K4SE)

Johnson City . . . . . .A new 87-27 repeater will soon be located on Tannery Knob in Johnson City at the height of about 2100 feet or 120 feet HAAT. The repeater will have autopatch facilities in the future. Coverage is expected in the Tri-City area, as well as Elizabethtown and Greenville. The CVRA coordinated repeater will not give much N.C. coverage due to Buffalo and other mountain peaks. (Bob, K4SE)

Greeneville. . . . . . .The 10-70 repeater in Greeneville is giving excellent coverage in the Tennessee area, as well as Virginia, N.C. and occasionally Kentucky. The WR4HP machine is reported to be operating well. (Bob, K4SE)

SOUTH CAROLINA NEWS

Spartanburg . . . . . .The new Spartanburg 69-09 repeater is fully operational now. Sponsored by the Spartanburg ARC, WR4BDT gives good coverage through the counties of Spartanburg, Anderson, Cherokee, Union, Rutherfordton, and Polk County, N.C. The G.E. Progress Line repeater feeds a DB Products antenna system, located 1220 feet above sea level. Trustee is Gregory Wilson, N4CC. The group joined the CVRA in March. (Tnx. N4CC, Gregory, and WD4CVR, John)

Laurens . . . . . .The Laurens County ARES net meets at 2030 on the 25-85 WR4AZM repeater. The Carolina Computer and Amateur Radio Assn. meets at 1930 on 2nd and 4th Fridays in the Heritage Federal S & L building. The group reports that autopatch facilities are under construction for the repeater. They are presently allowing RTTY operation on 25-85 on a non-interference basis with voice operation.

Spartanburg . . . . . .The 69-09 repeater at its site near Inman is now in full operation. The new machine comes complete with coded autopatch and gives good coverage in the Spartanburg area.

Greenwood . . . . . .Operators of the Greenwood WR4AUE repeater after experiencing mutual interference with a nearby 75-15 machine is moving up 15 khz to the nearest split/split. The machine should be functional on its new frequency shortly on 147.765-147.165. The move will give the Greenwood users a noise free clear channel. Extended coverage should now be possible for the repeater. Autopatch service is available. (K4MOB, W4AZT)

North Augusta . . . . . .Although the CVRA was not notified of its move, it has learned that the August (Ga.) Radio Club moved the 93-33 repeater to North Augusta (S.C.) location recently to secure better coverage in the area.

Columbia . . . . . .A new repeater is on the air to be used as an autopatch machine. The 16-76 group put the machine on the frequencies of 84-24. The machine will cover Columbia and nearby counties, providing full autopatch facilities.

Columbia . . . . . .A new repeater utilizing the new 2-meter sub-band (144.5/145.5 mhz) will be under construction here soon. No frequency has been coordinated, but it is believed they will go to the channel, 144.61-145.21. More details next issue.

Greenville . . . . . .The Blue Ridge Amateur Radio Society is completing plans for the 1978 Greenville Hamfest to be held March 18 & 19. This will be also a South Carolina ARRL State Convention complete with seminars, banquet and ARRL forums. The activities will be held at the Greenville Memorial Auditorium.

Greenville . . . . . .The Blue Ridge ARS now holds nets on Monday and Thursday nights at 9:00 p.m. local time. Monday night on ARES and Thursday Nights Civil Defense. The nets will be held on WR4ADG, 01-61.

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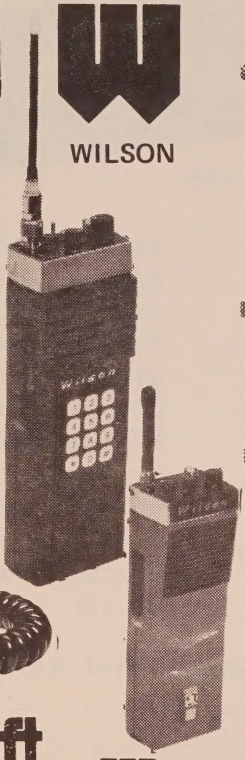

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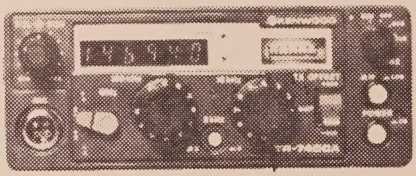

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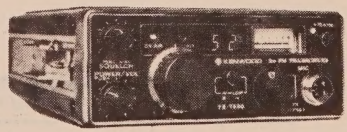

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FCC DELAYS IMPLEMENTATION OF DOCKET 21033

-----Special to the Journal-----

(Editors Note:) The amateur repeater community has been thrown into a state of confusion as the date passed for implementation of docket 21033 (Nov. 4) and then two days later word was received that the docket has been delayed. Several repeaters scrambled to revert back to previous regulations of monitoring and repeater calls. Word concerning the docket delay was received after the story in this Journal had been printed, leaving this slip sheet the only alternative of getting the updated information in the Journal. No word is available of when, or in what form docket 21033 will be implemented).

SPECIAL WIAW BULLETIN #117, ARRL HQ. (November 4, 1977) Received November 5 & 6.

"Superseding the information of ARRL official bulletin 677 dated 11/3/77, the FCC has delayed implementation of the new repeater regulations scheduled to go into effect Nov. 4, 1977. Many parties, including the ARRL, filed partitions for reconsideration in docket 21033, and pending FCC action on these partitions, the OLD RULES will remain in force. In particular, the proposed new repeater sub-bands, and technician segment 144.5 - 145 MHz., are not yet available for use. Also, mobile and portable auxiliary link operations is not authorized. There is still a freeze on the filing of applications for new repeater, auxiliary link, and control stations, but applications for modifications and renewals of these stations will be processed." (Tnx to W4HG for advance text of bulletin.)

NOTE: **In the repeater index in the center of the Journal for N.C., S.C., and Va. some repeater calls listed under personal amateur calls will be in error due to the FCC delay in docket 21033.**

REPEATER SIMPLIFICATION------DOCKET ACTED UPON BY FCC

------by Wayne C. Williams, K4MOB

The FCC made quick action of adopting Docket 21033 (repeater simplification). They also stated there is an immediate freeze on filing of applications for new repeater, auxiliary link, and control station licenses. Briefly here is what the commission released on Docket 21033, effective November 4th, 1977:

a) Distinct licenses for repeaters, auxiliary link, and control stations will be eliminated. These models of operation will become privileges inherent in all individual primary licenses and club station licenses. This means that distinctive "WR" prefixes for repeaters are being abolished. However, present repeater, auxiliary link, and control station licenses remain in effect til expiration, at which time they will not be renewable. Also, applications for repeater station licenses now on file will be dismissed with action.

b) Portable and mobile operation of auxiliary link stations has been approved.

c) In addition to the present repeater subbands, the following frequencies have been made available for repeater use: 144.5 - 145.5 MHz, 220 MHz and up (except 435 - 438 MHz).

d) Technician class licensees have been granted additional privileges at 144.5 - 145 MHz, so that they may use the newly created repeater subband on two meters. this gives Technicians privileges on 144.5 - 148 MHz in all on two meters.

e) The identification interval for repeaters has been extended to at least once each 10 minutes.

f) Stations operating in the repeater mode shall identify either by phone by adding the word "repeater" after the primary call sign, or by cw by following the primary call with "/RPT". Stations operating in the auxiliary link mode (or control mode - the control function has been combined with that of auxiliary link) shall identify either by phone by appending the word "auxiliary" after the primary call, or by cw by including "/AUX" after the primary call.

g) Transmissions from open access, automatically controlled repeaters need no longer be monitored or recorded.

There was no action taken on the establishment of priorities for frequency use, on modifications of the present effective radiated power versus height above average terrain requirements, or on the elimination of the requirement that a record of third party traffic must be maintained in the log of a repeater station, or of a station operating in the repeater mode.

FCC Docket Continued

Amateurs should be made aware that this in no way changes the requirements listed in Part 97.111 except those parts pertaining to Docket 21033. In other words, although an amateur does not have to apply for a distinctive repeater call, when placing a repeater on the air, he must meet all other requirements previously required to place a repeater in operation.

NEW 144.5 - 145.5 BAND PLAN

Quick work was required and strong cooperation among repeater councils to formulate a band plan for the new portion of 2-meter FM provided by the FCC through Docket 21033. The general consensus across the country with Repeater Councils is a low in/high out operation, with 20 kc separation between channels (thus eliminating split/splits). A total of 20 channels have been formed. The CVRA Frequency Coordinating committee has recommended that the CVRA concur and adopt the band plan recommended by numerous councils as well as published by the ARRL.

It should be noted that a large portion of space is still provided for SSB operation between the inputs and outputs of the FM portion. This is what makes the plan workable, utilizing the frequencies to a point where 20 additional repeater channels are available, yet leaving 500 khz below, 200 khz in between and 500 khz above for SSB and weak signal simplex operation.

THE PLAN

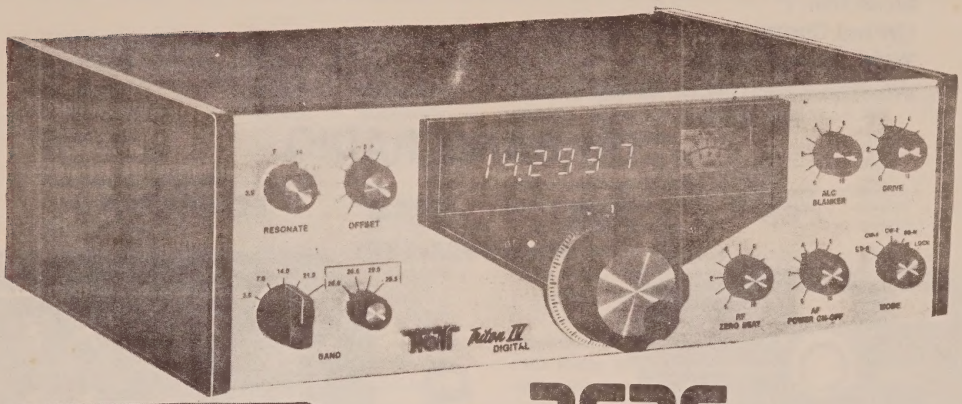
A total of 20 channels, 20 khz spacing, no splits. The first channel starts at 144.51 and the last at 144.89. Input/output spacing, 600 khz. The section from 144.9 to 145.1 (200 khz.) is reserved for non-channelized communications, weak signal, ssb, etc. Here are the repeater channels as recommended by the CVRA: Inputs/Outputs listed.

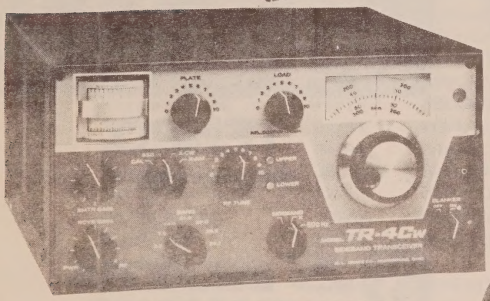
144.51 - 145.11	144.71 - 145.31
144.53 - 145.13	144.73 - 145.33
144.55 - 145.15	144.75 - 145.35
144.57 - 145.17	144.77 - 145.37
144.59 - 145.19	144.79 - 145.39
144.61 - 145.21	144.81 - 145.41
144.63 - 145.23	144.83 - 145.43
144.65 - 145.25	144.85 - 145.45
144.67 - 145.27	144.87 - 145.47
144.69 - 145.29	144.89 - 145.49

144.9 to 145.1, 200 khz. reserved for weak signal, SSB, etc. (Direct Communications.) Persons wishing to place repeaters in this portion of the band are urged to use the pairs listed above, and COORDINATE through your repeater council.

See Editor's Note Page 13

RADIO COMMUNICATIONS CO., INC.





TEN-TEC, INC.

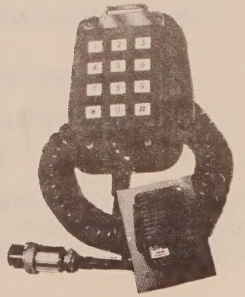
hf engineering

DRAKE

HUSTLER

Larsen Antennas

ROHN



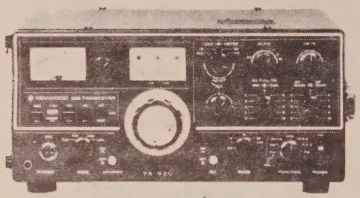
RADIO COMMUNICATIONS COMPANY, INC.
311 Shenandoah Ave., N.W.
Roanoke, Virginia 24016
Area 703-342-8513

Suite No. 1
United Center
3618 Reynolda Rd.
Winston-Salem, N.C. 27106

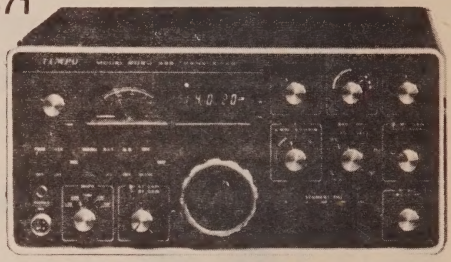
TRI-BAND RADIO

"CB" "SSB" "HAM" EQUIPMENT

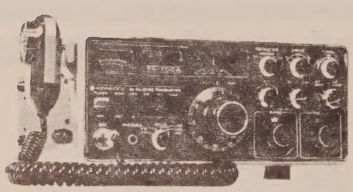
Phone 924-1371



KENWOOD Transceiver TS-520
80 thru 10M $629.



TEMPO
2020 SSB transceiver



KENWOOD FM/SSB
TS 700A $599.

SWAN® ELECTRONICS
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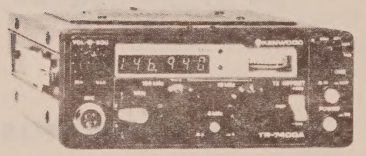

KENWOOD 2M FM
TR-7400A $399.

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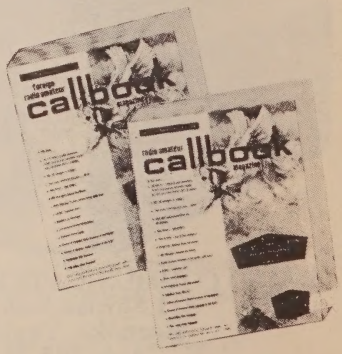
3 COLOR QSL CARDS



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GENE WILLIAMS WA4STV	924-4333
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CHARLES PENDERGRASS WA4SUB	945-3370

VHF NET REGISTER (Local Times Indicated)

TWO METERS - FM

Anderson SC	37/97	WR4AIO	Anderson Radio Club Net	Daily	2000
Asheville NC	16/76	WR4AEV	Western North Carolina Tfc. Net	Tue	2030
Benson NC	87/27	WR4ARL	Johnson ARS Net	Daily	1930
Burlington NC	07/67	WA4HBQ	Alamance County AREC Net	MWF	2100
Catawba County NC	146.82		Catawba County RACES Net	Mon	1900
Charlotte NC	34/94	WR4AEU	Metrolina 2 Meter Emer. Net	Daily	2100
Danville Va.	10/70	WR4BDN	Last Capitol Service Net	TThSn	2030
Durham NC	34/94	WR4BEK	Triangle Radio Alert Net	Daily	2030
Fayetteville NC	31/91	WR4ANN	Cape Fear ARS Net	Daily	1900
Florence SC	37/97	WR4AGM	Florence 2 Meter Net	Mon	2000
Greensboro NC	72/12	WR4ANP	Guilford County Emer. Net	Thu	2100
Greenville NC	146.52		Brightleaf ARS Net	Tue	2100
Greenville NC	01/61	WR4ADG	Blue Ridge ARS Net	MTh	2100
Greenwood SC	765/165	WR4AEU	Abbeville-Greenwood Emer. Net	Tue	2200
Grifton NC	16/76	WR4ABP	ENC Emergency Net	Thu	2000
Laurens SC	25/85	WR4AZM	Laurens City ARES Net	MF	2030
Laurinburg NC	07/67	WR4AOX	Sand Hills Emergency Net	Daily	1930
Lynchburg Va.	01/61	WR4AXO	Lynchburg Two Meter FM Net	Tue	1900
Morganton, NC	75/15	WR4AQI	W. Piedmont VHF Net	Wed	2100
Myrtle Beach SC	01/61	WR4AXC	Grand Strand 2 Meter Net	Wed	2100
Raleigh NC	04/64	WR4ACF	RARS Net	MTThF	2000
Roanoke, Va.	385/985	WR4AFY	Roanoke Valley ARC Net	Wed	2000
Rocky Mount NC	72/12	WR4ADN	Rocky Mount, ARC	Thu	2030
Salisbury NC	13/73	WR4AAA	Central North Carolina Tfc. Net	Daily	2200
Sumter SC	04/64	WR4AOI	Sumter Repeater Assn. 2 meter Net	Mon	2130
Virginia Beach, Va.	146.52		Virginia Beach ARES Net	Thu	2000
White Hall SC	31/91	WR4AQL	Coastal ARA 2 Meter Net	Thu	2100
Winchester, Va.	22/82	WR4AGT	Shenandoah Valley Service Net	Daily	1915
Winston-Salem NC	04/64	WR4ARD	Forsyth County AREC/RACES Net	Wed	2100

1½ Meters (220 Mhz) - FM

Sauratown Mt.	223.28/ 224.88	WR4AOW	CVRA Information Net	Wed	2130

TWO METERS - SSB/CW/AM

Tidewater Sideband Net	Norfolk, Va.	145.025	Tue	2100
North Carolina S.W.O.T.	Greensboro NC	145.100	Tue	2100
Midwestern SSB Net	Cincinnati Ohio	145.020	STTh	2100
S.L.O.T. Net	Greenville SC	145.110	MWF	2130
Hampton Roads Emergency Net (AM)	Norfolk, Va.	145.800	Mon	2000
Mid Atlantic 2 meter Net	Washington DC	145.100	Wed	2100

SIX METERS

Interstate Net (SSB)	Atlanta Ga.	50.110	Tue	2100
Dixie Net (SSB)	Charlotte NC	50.110	Wed	2100
Charlotte Hornet Net (AM)	Charlotte NC	50.400	Sun	2100
North Carolina 6 Meter Net (SSB)	Glendale Springs NC	50.120	Sun	0900
Central Virginia Net (AM)	Richmond, Va.	50.250	Daily	1900
Tidewater SSB Net	Norfolk, Va.	50.150	Tue	2000

2 Meter Repeaters

Ahoskie	WR4AFB	146.31	146.91		A
Albemarle	WR4BBX	146.385	146.985		
Asheville	WR4AEV	146.16	146.76		
Asheville	WR4ANY	146.31	146.91	N	A
Aurora	WR4ABQ	146.34	146.94		
Benson	WR4ARL	147.87	147.27		A
Boone	WR4ATQ	147.96	147.36		
Burlington	WA4HBQ	146.07	146.67		A
Burlington	WR4AIF	146.475	147.075		A
Charlotte	WR4AEU	146.34	146.94		A
Charlotte	WR4AWQ	147.99	147.39		
Charlotte	WR4ALO	146.46	147.06		A
Charlotte	WR4ABK	147.78	147.18		
Concord/Kan.	†WR4ABT	146.055	146.655	N	A
Durham	WR4AJV	147.75	147.15	N	O
Durham	WR4BEK	146.34	146.94		
Durham	†WR4AGC	146.22	146.82		
Durham	WR4AJY	147.38	147.98	N	
Eden	WR4AZX	147.84	147.24		
Erwin	WR4ALY	146.43	147.03		
Elizabeth City	WR4ADN	146.46	147.06		A
Fayetteville	WR4ANN	146.31	146.91		A
Fayetteville	WR4BCA	146.115	146.715	N	P
Fayetteville	WR4ADK	147.93	147.33		
Forest City	WR4AHA	146.07	146.67		A
Franklin	WR4ALD	147.84	147.24		
Franklin	WR4	147.96	147.36	N	
Gastonia	WR4BAD	146.205	146.805	L	
Gastonia	WR4ATP	147.72	147.12		
Gastonia	WR4AXH	147.81	147.21		A
Greensboro	WR4AOD	146.16	146.76		
Greensboro	WR4ANP	147.72	147.12		
Greensboro	WR4ANL	147.81	147.21	N	
Greensboro	WR4AWZ	147.63	147.03		A
Greensboro	WR4BBE	147.87	147.27	O	A
Greensboro	WR4BBE	146.01	146.61		A
Greenville	WR4AMB	147.69	147.09		A
Grifton	WR4ABP	146.16	146.76		
Hendersonville	WR4ALC	146.04	146.64		
Hickory	WR4ACM	146.25	146.85		
High Point	WR4AFV	146.19	146.79	N	
High Point	WR4ADT	146.40	147.00	N	A
Hillsborough	WR4AGC	147.825	147.225		A
Indian Trail	WR4APY	147.30	147.90	N	
Jacksonville	WR4AJG	146.40	147.00		A
Jacksonville	WR4ATW	146.34	146.94		A
Kernersville	K4QDM	147.915	147.315		
Kings Mtn.	WR4AYN	146.37	146.97		C
Lake Toxaway	WR4AGH	147.795	147.195		
Laurinburg	WR4AOX	146.07	146.67		
Lenoir	WR4ARG	147.93	147.33		
Lexington	WR4ABX	146.31	146.91		A
Lumberton	WR4AUA	147.81	147.21		
Lumberton	WR4BDQ	147.96	147.36		A
Maco	WR4	147.66	147.06		
Manteo	WR4AKB	146.34	146.94		
Marion	WR4BBN	147.705	147.105		C
Monroe	WR4AJX	147.30	147.90		N
Morganton	WR4AQI	147.75	147.15		
Mount Airy	WR4ACJ	146.37	146.97		A
Murfreesboro	WR4AFB	146.31	146.91		A
Pine Bluff	WR4	147.84	147.24	N	P
Raleigh	WR4ACF	146.04	146.64		
Raleigh	WR4AOE	146.28	146.88		A
Reidsville	WR4ADE	146.25	146.85		
Roanoke Rapids	WR4	147.96	147.36	N	P
Roaring Gap	WR4AGS	146.22	146.82		O
Rocky Mount	†WR4ADN	147.72	147.12		A
Salisbury	WR4AAA	146.13	146.73		A
Sanford	TWB4EJJ	147.78	147.18	N	
Seven Springs	WR4AEF	146.25	146.85		A
Shelby	WR4ABF	146.28	146.88		
Shelby	WR4AWU	147.84	147.24		A
Smithfield	WR4BBO	146.37	146.97		
Statesville	WR4AZI	146.085	146.685		
Tuckasegee	WR4	147.90	147.30	N	C
Waynesville	WR4	147.87	147.27		C
Wilmington	WRAHL	146.22	146.82		
Wilmington	WR4AVF	146.13	146.73	N	C
Winston Salem	K4BE	146.04	146.64		A

50 Mhz Repeaters (6-Meters)

Graham	WR4AYO	52.45	53.45	P	
Cary	WR4	52.35	53.35		
Durham	WR4ASZ	52.15	53.15		
Fayetteville	WR4ADK	52.07	53.07		
Hendersonville	WR4ALC	52.01	53.99		O
Hickory	WR4ACM	52.78	52.525		
Raleigh	WA4PEN	52.25	53.25		C
Raleigh	WR4AOE	52.05	53.05		
Sauratown Mtn.	WR4AOW	52.17	53.17		C

220 Mhz Repeaters (1¼ Meters)

Asheville	WR4AEV	222.34	223.94		
Durham	WR4AGC	222.34	223.94		
Durham	WR4ASZ	222.50	224.10		
Fayetteville	WR4	222.42	224.02	N	P
Burlington	WR4AKY	223.22	224.82		
High Point	WR4ADT	222.32	223.92	N	P
Locust	WR4BBA	222.40	224.00		
Raleigh	WR4BDU	223.04	224.64		
Sauratown Mtn.	WR4AOW	223.28	224.88		
Winston Salem	K4BE	223.10	224.70		R

450 Mhz. Repeaters (¾ Meters)

Burlington	WR4AKY	439.25	427.25	V	C
Asheville	WR4ALE	449.90	445.90		C
Charlotte	WR4AEI	450 PRIVATE		N	
Charlotte	WR4ALO	449.85	444.85		C
Concord	WR4	PLANNED		N	
Durham	WR4AGC	449.10	444.10		A
High Point	WR4ADT	447.90	442.90	N	
Moyock	WR4BBP	447.10	442.10		C
Sauratown Mtn.	WR4AOW	448.00	443.00		C

REPEATER SYMBOLS

N	NON Member CVRA	C	Under Construction
A	Autopatch	P	Proposed
T	Tone Access	O	Off Air Tempory
*	Alternate Freq.	V	Television
†	Temporary Call	R	RTTY
L	Linked	M	T-Marc Member

VIRGINIA

2 Meter Repeaters

Afton	WR4	146.25	146.85	N	P
Alexandria	WR4ATZ	147.915	147.315	M	
Alexandria	WR4AXB	146.055	146.655	N	
Arlington	WR4AQP	146.22	146.82	M	
Barren Springs	WR4AFQ	146;07	146.67	N	
Berryville	WR4APE	147.90	147.30		L
Bluefield W.Va.	WR4AXS	146.16	146.76	N	
Blacksburg	WR4AXT	146.31	146.91	N	C
Blacksburg	WR4	146.43	147.03	N	C
Briarpatch Mt.	WR4AHR	147.69	147.09		L
Bristol	WR4AFZ	146.28	146.88	N	
Brumley Mt.	WR4ATJ	146.01	146.61	N	
Charlottesville	WR4ATL	146.16	146.76		
Chesapeake	WR4ACN	146.19	146.79		A
Culpepper	WR4BCS	147.72	147.12	M	
Cole Mt.	WR4BCI	147.93	147.33	M	
White Oak Mt.	WR4BDN	146.10	146.70		
Danville	WR4AHG	147.945	147.345	N	
Fairfax	WR4AAD	146.19	146.79	M	
Farmville	WR4ASW	146.31	146.91		
Forest	WR4ADY	146.16	146.76		A
Galax	WR4	146.34	146.94		P
Gum Springs	WR4BBI	147.87	147.07	N	
Hampton	WR4ALW	146.13	146.73		
Hampton	WR4AFT	146.34	146.94	M	T
High Knob	WR4	147.81	147.21	N	
Lynchburg	WR4AXO	146.01	146.61	N	
Martinsville	WR4	--	--	N	P
McLean	WR4APC	147.81	147.21	M	RA
McLean	WR4	146.085	146.685	N	P
New Market	WR4ATG	146.025	146.625	M	P
Norfolk	WR4ANT	146.10	146.70	N	O
Petersburg	WR4ATB	147.90	147.30		
Petersburg	WR4AWC	147.99	147.39	N	O
Portsmouth	WR4	146.25	146.85	N	C
Richmond	WR4ADI	146.34	146.94	N	T
Richmond	WR4BBZ	146.28	146.88		A
Richmond	*WR4ACW	146.43	147.03		
Richmond	*WR4ACW	146.10	146.70		R
Roanoke	WR4AMQ	146.13	146.73	N	C
Roanoke	WR4AFE	146.28	146.88		L
Roanoke	WR4AFY	146.385	146.985		
Roanoke	WR4AHT	146.34	146.94	N	
South Boston	WR4AYU	146.46	147.06	N	A
South Hill	WR4BBU	147.84	147.24		
Staunton	WR4ACL	146.34	146.94		
Suffolk	WR4AKS	146.40	147.00		A
Tyson's Corner	WR4ABR	146.31	146.91	M	A
Virginia Beach	WR4AAC	146.37	146.97		A
Washington,DC	WR3AGX	147.96	147.36	N	
Williamsburg	WR4	147.75	147.15	N	P
Winchester	WR4AGT	146.22	146.82		
Woodbridge	WR4AII	147.84	147.24	N	A

50 Mhz Repeaters (6 Meters)

Abington	WR4ATJ	52.01	53.01	N	L
Lexington	WR4BCI	52.01	53.01	N	
Norfolk	WR4ATK	53.525	52.525	N	C
Petersburg	WR4	52.55	53.55	N	C

220 Mhz Repeaters (1¼ Meters)

Tyson's Corner	WR4AEY	222.34	223.94	M	

450 Mhz Repeaters

Alexandria	WR4ANC	442.05	447.05	N	
Alexandria	WR4AAG	439.25	427.25	N	V
Chailottesville	WR4AYG	449.25	446.00	N	
Chesapeake	WR4ACN	449.95	444.95		P
Ft. Belvoir	WR4AJT	444.125	449.125	N	
Paris	WR4ANJ	444.80	449.80	N	
Richmond	WR4	444.50	449.50	N	P
Roanoke	WR4AFY	442.5	447.5		C
Tyson's Corner	WR4ARB	444.75	449.75	N	
Woodbridge	WR4AII	444.90	449.90	N	

SOUTH CAROLINA

2 Meter Repeaters

Anderson	WR4AiO	146.37	146.97		A
Charleston	WR4ASP	146.16	146.76		A
Charleston	WR4BCH	146.10	146.70	N	A
Charleston	WR4BCP	147.87	147.27		C
Charleston	WR4AFX	146.34	146.94		T
Chester	WR4	146.19	146.79	N	C
Clemson	WR4	147.87	147.27		C
Columbia	WR4ASE	147.96	147.36		A
Columbia	WR4ACD	146.34	146.94		T
Columbia	WR4ABA	146.28	146.88	N	
Columbia	WR4AYE	146.16	146.76		
Columbia	WR4	147.255	146.835	N	
Columbia	†WR4AYE	147.84	147.24		A
Columbia/Irmo	WR4	146.07	146.67		C
Florence	WR4AGM	146.37	146.97		
Greenville	WR4AHJ	146.22	146.82		A
Greenville	WR4ADG	146.01	146.61		
Greenville	WR4ABG	146.34	146.94		T
Greenville	WR4AHJ	146.10	146.70		C
Greenwood	WR4AUE	147.765	147.165		A
Lancaster	WR4ABM	146.10	146.70		A
Lancaster	WR4	146.235	146.835	N	C
Laurens	WR4AZM	146.25	146.85		
Myrtle Beach	WR4AXC	146.01	146.61		
North Augusta	WR4ABB	146.13	146.73		
North Augusta	WR4ALS	147.93	147.33	N	
Orangeburg	WR4AQY	147.69	147.09		A
Pickens	WR4ADP	146.40	147.00		
Rock Hill	WR4AJO	146.43	147.03		
Spartanburg	WR4BDT	147.69	147.09		A
Sumter	WR4	147.66	147.06	N	P
Sumter	WR4AOI	146.04	146.64	N	
White Hall	WR4AQL	146.31	146.91		

50 Mhz Repeaters (6 Meters)

Columbia	WR4	52.05	53.05		C

220 Mhz Repeaters (1¼ Meters)

Columbia	WA4URY	222.30	224.94	N	C

450 Mhz Repeaters (¾ Meter)

Charleston	WR4ASP	449.10	444.50		T

NORTH CAROLINA

ASHEVILLE - Western North Carolina ARC, 1st Thur. 2000, Buncombe Health and Welfare Bldg., 2nd Monday 1915 Grace Restaurant on Merrimon Street.
BENSON - Johnson ARS 3rd Thur. 1930, at 50-210 Fire Station WR4ARL (27)
BURLINGTON - Alamance ARC 2nd & 4th Monday 1930, at 230 E. Summit Ave.
BURLINGTON - Alamance Repeater Asso. Inc. 4th Sat. 1900 at B & J Cafeteria WA4HBQ (67)
CARY - Cary ARC 4th Thur. 1930 at White Plains Methodist Church, WR4AOE (88)
CHARLOTTE - Mecklenburg ARS Last Tue. 1930-Red Cross Bldg on Park Rd. W4BFB/WR4AEU (94)
CHARLOTTE - Charlotte RC 1st Thur. 1900 Club Bldg. - WSOC-TV Tryon St. W4CQ/WR4ALO (06)
CHARLOTTE - Friday Lunch Group Fri. 1200 - Mediterranean Rest. on Independence Blvd.
CONCORD - Cabarrus ARS, 3rd Mon., 1930, Kimball Memorial Lutheran Church, Aux. Bldg., Kannapolis
DURHAM - Durham FM Assn. 2nd Tue. 1800 - K & W Cafeteria at University Mall in Chapel Hill WR4AGC (82)
EDEN/REIDSVILLE - Rockingham County ARC 1st & 3rd Mon., 1900 Wentworth Courthouse
FAYETTEVILLE - Cape Fear ARS 3rd Mon. 1900 - Methodist College, WR4ANN (91)
GREENSBORO - Greensboro ARA, 4th Mon., 1830, Founders Hall, Guilford College, WR4BBE (27)
GREENSBORO - Greensboro RC Fri. 1930-Club House near Friendship Airport, W4GG
GREENSBORO - Piedmont ARS 3rd Fri. 1830-Bonanza Sirloin Pit Rest., High Point Rd.
GREENSBORO - Ladies in Amateur Radio Soc. 1900 2nd Tue., Mbrs. Home, 4th Tues., Apple House Cafe, Guilford College
HIGH POINT - High Point ARC Tue. 1930 - Old Mill Rd. WRAFV (79) & WR4ADT (00)
JACKSONVILLE - Onslow ARC 2nd Sat. 1000 - Howard Johnsons Restaurant WR4AJG (00)
KANNAPOLIS - Cabarras County ARS 3rd Mon. 1930, Activity Bldg., Kimball Memorial Lutheran Church
LAURINBURG - Scotland County ARS 1st Wed. - Cablevision Office, WR4AOX (67)
LEXINGTON - Healing Springs Mountain VHF Soc. Last Mon. 1930 - Burlington House Furniture Co. Personnel Office W4PAR/WR4ABX (91)
LUMBERTON - Lumberton ARC, 3rd Thu. Robeson County Public Library at 1930
MORGANTON - Morganton ARC, 1st Mon., 1930, W. Piedmont Community College
RALEIGH - Raleigh ARS 1st Wed. 1930, Livestock Pavilion Room, N.C. State Fair Grounds, W4DW/WR4ACF (64)
ROCKY MOUNT - Rocky Mount ARS, 3rd Thurs., 1900, Farmer's Restaurant in Sharpsburg (12)
SALISBURY - Rowan ARS & 4th Mon. 2000-Salisbury City Hall, Main Street W4EXU/WR4AAA (73)
SHELBY - Shelby Radio Club 2nd Mon. 1830 Hungry Bull Restaurant, Dutch Supper
STATESVILLE - Iredell County ARS, 2nd Thurs.
WINSTON-SALEM - Forsyth Amateur Radio Club, 2nd Friday - Nature Science Center
WILMINGTON - Wilmington VHF Assn., 2nd Tue. of Jan., Mar., May, July, Sept., & November at Carolina Savings & Loan
College Road Social Meeting in other months at location announced. WR4AHL (82)

SOUTH CAROLINA

ANDERSON - Anderson RC 4th Thu. 1930 - Anderson County Library WR4AIO (97)
CHARLESTON - Holiday VHF Soc. 2nd Wed 1930 - Pinehaven Shopping Center Meeting Room, WR4AFX (94)
CHARLESTON - Trident ARC 1930 3rd Thurs. Park Circle Presbyterian Church
COLUMBIA - Carolina Repeater Society 1st Mon. 1930 Providence Presbyterian Church WR4ACD (94)
FLORENCE - Florence FM Repeater Assn. 3rd Mon. 1930 Florence Darlington Technical Center
GREER - Greer ARC 1st Mon. 1930 Meeting Location announced monthly, WR4ABG (94)
GREENVILLE - Blue Ridge ARS 1st Tue. 1930 Red Cross Building 3rd Tues. Dinner.
GREENVILLE - The Dutch Lunch Club - Mon. S & S Cafeteria at 1245.
GREENWOOD - Piedmont Tec ARC, 1st Mon. 1930 at Piedmont Tec, WR4AUE (165)
KEEOWEE - Keeowee, Toxaway ARC, 3rd Tue, at Keeowee Toxaway Visitors Center.
LAURENS - Caro. Computer and ARA 2nd & 4th Friday 1930, Heritage Federal Savings and Loan Building.
ORANGEBURG - Orangeburg ARC 1st Thurs. 1930 at Tennelec on Hwy. 301 North, WR4AQY (09)
SUMTER - Sumter Repeater Assn. 3rd Mon. 2000 City/County Office Building Conference Room WR4AOI (64)
WALTERBORO - Costal Amateur Radio Assn. 2nd Sat. 1900, meeting announced on 31/91 net.

CLUB MEETING CALENDAR

VIRGINIA

ALBERTA - Name now being selected by contest. 3rd Thurs., 1900, SOUTHSIDE VIRGINIA COMMUNITY COLLEGE
CHARLOTTESVILLE - University of Virginia ARC every other Thurs., 1930 Thornton Hall, W4UVA
CHARLOTTESVILLE - Albemarle ARC 2nd Wed. 1930 at City Courthouse on 4th Street NE, WA4TFZ
LYNCHBURG - Lynchburg ARC 2nd Fri. 2000 at Beulah Baptist Church, Leesville Road, K4HEX
MARTINSVILLE - Patrick Henry ARA, 3rd Tues., 1930, 1st National Bank of Martinsville and Henry Ctr.
NEWPORT NEWS - SPARC 1st & 3rd Wed. 1930 at Vepco Building in Hampton, WR4ALW (73)
NORFOLK - Hampton Roads Radio Assn., 2nd Thurs., 2000 Larchmont Library, Hampton Blvd., WR4ACN (79)
NORFOLK - Tidewater ARC, 2nd & 4th Sat., 1000, Fort Norfolk, Hampton Blvd.
PETERSBURG - Crater ARS - 4th Wed. 1930 John Tyler Community College
PORTSMOUTH - Portsmouth ARC, 2nd & 4th Thurs., 11930, Art Center, 420 High St.
RICHMOND - Richmond Amateur Telecommunications Soc (RATS) 1st & 3rd Fri. 1930 at the stone house in Forrest Hill Park, WR4ACW (88)
VIRGINIA BEACH - Virginia Beach ARC 1st Tue. 1900 at Virginia Beach Recreation Center, WR4AAC (97)
WINCHESTER - Shenandoah Valley ARC 1st/3rd Fri. 2000 Club Building on Grace Street WR4AGT (82)

CLUB SECRETARIES! Is your club and meeting times mentioned in the Journal correctly? If you do not have your club listed, or changes occur in the club schedule, please send all changes to the Journal Editor and we'll get it changed.

REPEATER ASSOCIATIONS JOIN CVRA AS FULL MEMBERS

The CVRA Full-Membership list grew to 106 associations this quarter as the 6-meter repeater in Raleigh, and 2-meter repeaters in Durham and Waynesville joined. WR4BDU operating on 6-meters is now a full member from Raleigh. Trustee is Ed Alderman, WA4PEN and 2nd CVRA representative is J.R. Bennett W4IFX.

A new repeater going on the air in Waynesville N.C. is represented in the CVRA by James Leonard, W4FPS, trustee, and Dan Pugh as 2nd representative. The new 87-27 machine is waiting for its license.

New owners of the Durham 34-94 repeater representing the CVRA are Harry Prout WA4BFT, trustee, and Henrik Rasmussen, WA4BAN as 2nd representative.

Welcome to the CVRA.

SPARTANBURG SPELLED WITH AN "AYE"

The August issue of the CVRA Journal in its coverage of the fine city of Spartanburg repeaters and clubs, inadvertently misspelled the city's name, placing an E where there should have been an "A".

The Editor regrets this error, and has purchased the 1978 edition of the Funk & Wagnalls to insure this will not be repeated in the future. New eyeglasses have also been purchased for our proofreading staff. Thanks to the dozens of South Carolinians who brought this to our attention.

And again, our apologies to the 200,000 fine residents of Spartanburg (spelled with an "Aye". *(The editor)*

FREQUENCY DISTRIBUTION

01/61	Greensboro	Greenville,Myrtle Beach	Lynchburg,Brumley Mt.
025/625	Kannapolis	–	New Market
04/64	Raleigh,Hendersonville	Sumter	–
	Winston-Salem	–	–
055/655	Concord/Kann.	–	Alexandria
07/67	Burlington,Forest City	Columbia	Barren Springs
	Laurinburg	–	–
085/685	Statesville	–	McLean
10/70	Marion Greenville (Tn)	Lancaster,Charleston,Greenville	White Oak Mt,Richmond,
			Norfolk
	–	–	–
115/15	Fayetteville	–	–
13/73	Salisbury,Wilmington	No. Augusta	Hampton,Roanoke
145/745	–	–	–
16/76	Grifton,Greensboro,Asheville	Charleston,Columbia	Bluefield,W. Va.,
			Charlottesville,Forest
175/775	–	–	–
19/79	High Point	Chester,Taccoa (Ga.)	Chesapeake,Fairfax
205/805	Gastonia	–	–
22/82	Durham,Roaring Gap	Greenville	Winchester,Arlington
	Wilmington	–	–
235/835	–	Columbia (147.255 in)Lancaster	–
25/85	Hickory,Reidsville,Seven Spgs.	Laurens	Afton,Portsmouth
265/865	–	–	–
28/88	Raleigh,Shelby,	Columbia	Bristol,Roanoke,Richmond
195/895	–	–	–
31/91	Fayetteville,Lexington	White Hall	Tyson's Corner,Farmville
	Murfreesboro	–	Blacksburg
325/925	–	–	–
34/94	Aurora, Durham,Manteo	Charleston,Columbia	Hampton,Roanoke
	Charlotte,Jacksonville	Greenville	Richmond,Galax
355/955	–	–	–
37/97	Mt. Airy,Smithfield,Kings Mtn.	Anderson,Florence,Savannah	Bull Runn,Va. Beach
385/985	Albemarle	–	Roanoke
40/00	High Point,Jacksonville	Pickens	Suffolk
60/00	–	–	–
615/015	–	–	–
43/03	Irwin	Rock Hill	Blacksburg
475/075	Burlington	–	–
63/03	Greensboro	–	–
645/045	–	–	–
46/06	Charlotte,Elizabeth City	–	South Boston
475/075	–	–	–
66/06	Maco	Sumter	–
675/075	–	–	–
69/09	Greenville	Orangeburg,Spartanburg	Briarpatch Mt.
705/105	Marion	–	–
72/12	Greensboro,Rocky Mt,Gastohia	Augusta (Ga.)	Culpepper
735/135	–	–	–
75/15	Durham,Morganton	Greenwood	Williamsburg
765/165	–	–	–
78/18	Charlotte,Sanford	–	–
795/195	Lake Toxaway	–	–
81/21	Greensboro	–	McLean,High Knob
	Lumberton,Gastonia	–	–
825/225	Durham	–	–
84/24	Franklin,Shelby,Eden	Columbia	Woodbridge,South Hill
	Pine Bluff	–	–
855/255	–	–	–
87/27	Greensboro,Benson,Waynesville	Clemson,Charleston	Gum Springs
885/285	–	–	–
90/30	Tuckasegee	–	Petersburg,Berryville
915/315	Kernersville	–	Alexandria
93/33	Lenoir,Fayetteville	N. Augusta	Cole Mt.
945/345	–	–	Danville
96/36	Roanoke Rapids,Boone,	Columbia	Washington (DC)
	Franklin.Lumberton		

975/375	--	--	--
99/39	Charlotte	--	Petersburg
30/90	Indian Trial,Monroe	--	--
38/98	Durham		

GETTING REPEATER MEMBERSHIP ALL USERS CAN HELP

--by Bill Page, Membership Chairman

As you look thru the current list of repeaters in the CVRA area as indicated in the center spread of this issue of REPEATER JOURNAL, note the right hand column containing "N" following those repeaters which are non-members of CVRA. If your home repeater or one in your area is indicated as being a non-member, there are two things you can do that will only take a few minutes and would be very helpful.

First, you might speak to the key people in the non-member repeater group about their joining CVRA. Repeater membership is only $6 per year and included in this amount are 2 annual subscriptions to REPEATER JOURNAL for the two amateurs who are designated as that repeaters' Representatives to CVRA.

And second, it would help greatly if you would send the name, call sign and address of the key person in the non-member repeater group to WB4LWX, CVRA Repeater Membership Chairman. Some of the non-member groups have been invited to join -- when we had the name and address of the person to write to -- but there are some non-member repeaters in our current list who have never been asked to join simply because we didn't know to whom we should write. If you know of a non-member repeater and can send a name, call and address to Bill Page, WB4LWX, P.O. Box 871, Kinston,NC 28501, he'll see that full information is sent to the prospective member, and when the new repeater joins, we'll be able to publish full, accurate information about the repeater.

With this issue of REPEATER JOURNAL, Repeater Representatives should receive the annual Repeater Membership Renewal Form. Repeater memberships are on a calendar year basis renewable January 1, 1978. The forms should be completed by one of the Repeater Representatives or other authorized person representing the repeater and returned along with a $6 check for 1978 dues to William S. Page, P.O. Box 871, Kinston, NC 28501. The form thus returned is duplicated and distributed to frequency coordinators, Journal editor and membership address listing so it's important that this be as current and complete as possible.

W4BFB SCORES 33K IN VHF QSO PARTY - SEPT. 10-11

The Mecklenburg ARS Contest team of about 20 persons braved rain, thunder and lightning on Roan Mountain to beat out a new record for the club in VHF QSO Party scoring. The group worked full time on 6-meters, 2-meters, 220 mhz. and 450 mhz, and made a score of over 33,000 points for their effort. Ted Goldthorpe, WA4VCC, chairman of the event said they had a goal of 27K. The installation on the Mountain consisted of 6 individual towers and over $10,000 worth of Amateur equipment. *(Mecklenburg ARS News)*

Kissing is just so much chemistry. It has to do with a craving for salt. The cave man found that salt helped to cool him off in the summer. He found, too, that he could get salt by licking his neighbor's cheek. Also that it was more interesting if the neighbor was one of the opposite sex. Then everybody forgot about salt. **(author unknown . . . . who cares anyway!)**

NEIGHBORING STATE REPEATER INDEXES

(Editor's Note:) In this issue of the CVRA Journal, we are pleased to list for your information repeater indexes for Northern Florida, Tennessee, Georgia, Alabama, Maryland-D.C. and Delaware. Our normal updated repeater index of Virginia, North Carolina and South Carolina also appear elsewhere in this issue. Our thanks to the Alabama Repeater Council, the Columbus Georgia Amateur Radio Club, The Middle Atlantic FM and Repeater Council (T-MARC) and David P. Nulty K3MTY for their valuable assistance in correlating this massive index covering six surrounding states. This 6-State index will not appear in every issue of the Journal, so you should protect this copy for future use.

REPEATER LISTINGS - AUGUST 1977

NORTHERN FLORIDA

01-61	WR4ALA	Calahan
	WR4ALJ	Coala
	WR4AUY	Winter Haven
025-625	WR4AML	New Port Richey
04-64	WR4AMI	Jacksonville
	WR4AGW	Orlando
055-655	WR4AUY	Winter Haven
07-67	WR4AHY	Jacksonville
	WR4AWY	Marianna
	WR4AZD	New Port Richey
	WR4AQZ	Orange Park
085-685	WR4AWJ	Lakeland
10-70	WR4ALU	Panama City
	WR4AGO	Seminole
	WR4AJS	Winter Park
13-73	WR4AUP	Sarasota
	WR4ALV	Starke
	WR4AHW	Ft. Pierce
	WR4ARP	Orlando
	WR4AKC	Winter Garden
16-76	WR4AAF	Jacksonville
	WR4AFO	Orlando
	WR4ACZ	Pensacola
	WR4AAB	Tallahassee
	WR4AAH	Tampa
19-79	WR4ABZ	Ft. Walton Beach
	WR4AMD	Orlando
22-82	WR4ACE	Gainesville
	WR4AEL	Orlando
146.22-83	WR4ALZ	Bradenton
146.25-76	WR4AAH	Tampa
25-85	WR4AKP	Jacksonville
	WR4AIW	Pensacola
	WR4AMJ	Melbourne

Brandon
Ft. Myers
Jacksonville
Merrit Island
Palm Beach
San Antonio

Jacksonville
St. Petersburg
Tallahassee
Titusville

Daytona Beach
Live Oak
Melbourne
Panama City
Pensacola
Largo
Winter Garden

Leesburg
St. Petersburg

Clearwater
Jacksonville

Melbourne

Jacksonville

Hudson

Tampa

Tampa

St. Petersburg
Grn. Cove Springs

Jacksonville
Orlando

Melbourne
Plant City

Orlando

Ormond Beach
Tampa

Clearwater
Clermont
Orlando

Jacksonville

Riverview

Jacksonville

Bunnel

Crystal River
Lake Placid

Tampa

Jacksonville

Lake Wales

St. Petersburg

Pinellas Park

Calahan
Okeechobee
Orlando

CVRA REPEATERS

ASSOCIATE MEMBERSHIP APPLICATION CAROLINAS-VIRGINIA REPEATER ASSN.

Name _____ Date _____

Address _____ Call: _____

City: _____ State: _____ Zip: _____

Phone: (____) _____ Member of ARRL? _____

The Repeater I call "home" is: _____

Enclosed is: $ _____ ($2.00 Per Year)

J

R

Mail to:
CVRA
P.O.Box 3325
Burlington, N.C. 27215

NEIGHBORING

(Editor's Note:) In this issue of t
information repeater indexes for
Maryland-D.C. and Delaware. C
North Carolina and South Carolin
to the Alabama Repeater Counc
The Middle Atlantic FM and Re
K3MTY for their valuable assist
six surrounding states. This 6-S
Journal, so you should protect th

REPEA

NORTHERN FLORIDA

01-61

025-625

04-64

055-655

07-67

085-685

10-70

13-73

16-76

19-79

22-82

146.22-83

146.25-76

25-85

28-88	WR4AME	Brandon
	WR4AMA	Ft. Myers
	WR4AHX	Jacksonville
	WR4AFI	Merrit Island
	WR4AFM	Palm Beach
	WR4APL	San Antonio
31-91	WR4AMU	Jacksonville
	WR4AGP	St. Petersburg
	WR4	Tallahassee
	WR4AKK	Titusville
34-94	WR4ADC	Daytona Beach
	WR4AZR	Live Oak
	WR4ATD	Melbourne
	WR4AQB	Panama City
	WR4AIK	Pensacola
	WR4ALN	Largo
	WR4AJC	Winter Garden
37-97	WR4ARU	Leesburg
	WR4AKV	St. Petersburg
40-00	WR4AKU	Clearwater
	WR4AFL	Jacksonville
43-03	WR4AFI	Melbourne
146.795-195	WR4AQD	Jacksonville
147.205-805	WR4AWX	Hudson
147.21-81 (reverse)	WR4AFJ	Tampa
147.63-03	WR4AXR	Tampa
66-06	WR4ALM	St. Petersburg
	WR4AUO	Grn. Cove Springs
69-09	WR4AYW	Jacksonville
	WR4AJR	Orlando
705-105	WR4AEE	Melbourne
	WR4ANM	Plant City
72-12	WR4AER	Orlando
75-15	WR4AKH	Ormond Beach
	WR4ALT	Tampa
78-18	WR4APV	Clearwater
	WR4AYH	Clermont
	WR4AEQ	Orlando
795-195	WR4AQD	Jacksonville
81-21	WR4ALP	Riverview
825-225	WR4APN	Jacksonville
84-24	WR4	Bunnel
87-27	WR4AQX	Crystal River
	WR4AYF	Lake Placid
885-285	WR4AUG	Tampa
90-30	WR4AMR	Jacksonville
93-33	WR4AND	Lake Wales
915-315	WR4AUF	St. Petersburg
96-36	WR4ARI	Pinellas Park
99-39	WR4AQY	Calahan
	WR4BBQ	Okeechobee
	WR4AXT	Orlando

TENNESSEE

01-61	WR4AGQ	Lockout Mtn.
	WR4AWV	Nashville
04-64	WR4AIA	Knoxville
	WR4AYR	Memphis
	WR4AKN	Nashville
07-67	WR4ANW	Cookville
	WR4AKW	Lafollette
	WR4AWG	Nashville
10-70	WR4ACI	Hillsboro
	WR4AHP	Greeneville
13-73	WR4APU	Knoxville
	WR4BBM	Lebanon
	WR4AGR	Memphis
	WR4APV	Morristown
16-76	WR4ADO	Bromley
	WR4ACS	Nashville
	WR4ADQ	Oliver Springs
	WR4ACS	Nashville
19-79	WR4AIP	Johnson City
	WR4ABS	Memphis
	WR4AFA	Nashville
	WR4ADA	Signal Mtn.
22-82	WR4AGJ	Cross Mtn.
	WR4AFH	Winchester
	WR4AHO	Memphis
25-85	WR4APM	Alcoa
	WR4AZK	Memphis
	WR4ABV	Nashville
28-88	WR4AFZ	Bristol
	WR4AJU	Memphis
	WR4ACY	Nashville
	WR4ACL	Oak Ridge
31-91	WR4BAN	Knoxville
	WR4AZF	Short Mtn.
	WR4	Savannah
34-94	WR4AGX	Nashville
	WR4ADF	Walland
	WR4AEX	Memphis
37-97	WR4AGE	Kingsport
	WR4AIR	Modina
	WR4AWN	Altamont
	WR4ASG	Ridgetop
40-00	WR4AJK	Memphis
146.40-147.54	WR4AHF	Knoxville
43-03	WR4ASL	Lexington
147.205-147.805	WR4AWX	Hudson
60-00	WR4AFS	Signal Mtn.
	WR4A00	Clarksville
	WR4AXQ	Bristol (Holston Mtn.)
63-03	WR4BAQ	Crystal Ridge
	WR4	Fayetteville
	WR4AEJ	Morristown

66-06	WR4AQM	Shelbyville
69-09	WR4ANU	Memphis
	WR4	Murfreesboro
72-12	WR4	Columbia
	WR4AYB	Jackson
75-15	WR4AUX	Nashville
87-27	WR4	Johnson City
90-30	WR4ASF	Memphis
96-36	WR4AYX	Paris
	WR4AKN	Nashville
	WR4ATA	Memphis

GEORGIA

04-64	WR4ABE	Atlanta
	WR4APG	Oak Mtn.
07-67	WR4AEK	Wauka Mtn.
146.06-66	WR4AHD	Macon
10-70	WR4ADM	Albana
	WR4ACX	Eatonton
	WR4	Savannah
	WR4AMK	Waycross
13-73	WR4ABJ	Athens
	WR4ALI	Columbus
	WR4ABD	Mableton
16-76	WR4AED	Stone Mtn.
	WR4APR	Swainsboro
	WR4AEW	Valdosta
19-79	WR4AIH	Newnan
	WR4AHB	Toccoa
22-82	WR4ANB	Albany
	WR4AAE	Atlanta
	WR4APZ	Lyons
25-85	WR4ARS	Ft. Mtn.
	WR4AHM	Dallas
	WR4AFD	Warner Robbins
28-88	WR4AMN	Sweet Mtn.
	WR4BBH	Quitman
	WR4AQW	Savannah
31-91	WR4AIV	Griffin
34-94	WR4AQH	Americus
	WR4ADH	Rome
37-97	WR4ABC	Atlanta
	WR4AKF	Savannah
40-00	WR4ARK	Atlanta
43-03	WR4AEA	Griffin
146-48-147-48	WR4ASU	Riverdale
147.075-147.675	WR4AZW	Snellville
147.105-147.705	WR4BAG	Stone Mtn.
147.255-.855	WR4	Atlanta

REPEATER LISTINGS - AUGUST 1977

60-00	WR4AUM	Milledgeville
63-03	WR4ABN	Atlanta Airport
66-06	WR4AFR	Atlanta (Ga. Tech.)
72-12	WR4	Augusta
	WR4AZU	Cedartown
75-15	WR4AOC	Sawnee Mtn.
78-18	WR4AFC	Atlanta
81-21	WR4AQH	Americus
	WR4ARH	College Park
84-24	WR4AQA	Forsythe
90-30	WR4AHS	Atlanta
	WR4AZP	Warner Robbins
93-33	WR4AMT	Lagrange
	WR4ALS	Augusta
147.94-147.34	WR4AOT	Sweat Mtn. (Marietta)
99-39	WR4AKA	Hagans Mtn.

ALABAMA

01-61	WR4APS	Branchville
	WR4ADJ	Florence
	WR4BBB	Phenix City
04-64	WR4AJN	Demopolis
	WR4AMF	Gulf Shores
	WR4AFP	Jasper
	WR4AKM	Opp
	WR4AJI	Wetupka
07-67	WR4AEZ	Chandler Mtn.
	WR4	Monroeville
	WR4AUW	Vernon
146.07-147.31	WR4AES	Huntsville
10-70	WR4	Anniston
	WR4AQC	Eufala
	WR4AZY	Guin
	WR4ASM	Jasper
	WR4AGB	Mobile
	WR4AVB	Wellsburg
13-73	WR4AMM	Selma
16-76	WR4ACB	Birmingham
	WR4AJB	Boaz
	WR4AGZ	Barton
	WR4ADX	Headland
	WR4ABH	Autauga Hts.
	WR4ANX	Mobile
19-79	WR4AYJ	Clanton
	WR4APX	Texasville
22-82	WR4AEZ	Gadsden
	WR4AHQ	Mobile
	WR4AHH	Troy
	WR4AEH	Tuscaloosa
25-85	WR4ASY	Cullman
	WR4AJF	Dothan
	WR4BAM	Prattville

REPEATER LISTINGS - AUGUST 1977

28-88	WR4AEJ	Birmingham
	WR4ALR	Evergreen
	WR4AXE	Florence
	WR4AIC	Phenix City
31-91	WR4ARB	Georgiana
	WR4AUT	Montgomery
	WR4AUZ	Scottsboro
34-94	WR4AFF	Andalusia
	WR4ADD	Birmingham (Shades Mt.)
	WR4AIM	Huntsville
	WR4ADP	Mobile
	WR4AGN	Opelika
37-97	WR4BAE	E. Brewton
	WR4AGI	Gadslen
40-00	WR4ACK	Decatur
	WR4AJH	Montgomery
46-06	WR4AGN	Salem (RTTY)
	WR4AXM	Cohutta (Rtty)
146.55-147.15	WR4AKD	Athens
.655-055	WR4	Birmingham
60-00	WR4AUR	Lanette
63-03	WR4AXA	Fairfield
	WR4AXP	Selma
69-09	Wr4AGA	Mt. Cheaha
72-12	WR4AIU	Huntsville
	WR4AGA	Salem
75-15	WR4AZG	Hueytown
	WR4AZN	Fairhope
78-18	WR4AYL	Huntsville
	WR4	Montgomery
81-21	WR4AHI	Chandler Mt.
84-24	WR4BAS	Muscle Shoals
	WR4AYZ	Rogersville
87-27	WR4BAV	Ft. Payne
	WR4ATT	Grove Hill
	WR4AHZ	Montgomery
90-30	WR4APY	Eufala
	WR4	Huntsville
	WR4	Tarrance
	WR4AOB	Mobile
96-36	WR4AOM	Selma

MARYLAND/D.C.

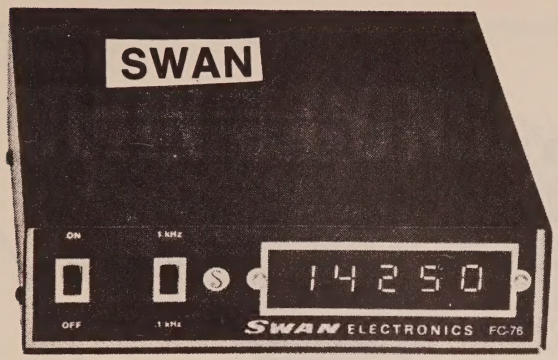
01-61	WR3ABC	Cheverly
04-64	WR3ABM	Rockville
	WR3ACP	Lexington Park
07-67	WR3AFM	Baltimore
10-70	WR3ACE	SEverna Park
13-73	WR3ABL	Frederick

16-76	WR3ADZ	Jessup
205-805	WR3AGO	Aberdeen
22-82	WR3ABS	Salisbury
25-85	WR3ADH WR3ABU	Havre de Grace Silver Spring
28-88	WR3AGI WR3ABB	Cumberland Greenbelt
34-94	WR3ABQ WR3ABT	Baltimore Hagerstown
40-00	WR3AFC	Ashton
445-045	WR3ADY	Cambridge
63-03	WR3ACR	Baltimore
66-06	WR3ADR	Frederick
69-09	WR3AFE	Wheaton
705-105	WR3	Davidsonville
735-135	WR3AGP	Columbus
75-15	WR3AGF	Cheltenham
765-165	WR3	Baltimore
78-18	WR3AEO	Wheaton
84-24	WR3AFI	Baltimore
87-27	WR3ACF	Potomac
885-285	WR3AIU	Baltimore
945-345	WR3AGS	Baltimore
96-36	WR3AGX	Wash. D.C.
99-39	WR3	Ellicott City

DELAWARE

13-73	WR3ABA	Wilmington
37-97	WR3ABP	Dover
75-15	WR3AGO	Wilmington
825-225	WR3AHO	Wilmington

Editor's Note: We have several complaints about lack of South Carolina items in some of the CVRA Journals of the past. Our S.C. State Director Wade Holland is looking diligently for news for each issue. You can help him by sending news items of interest in South Carolina to WADE, his address is on page 2 of the Journal. Let's hear from you folks! We can only publish what we hear about! (K4MOB, Editor)



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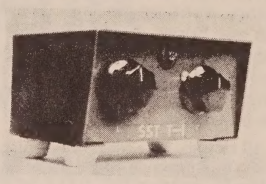

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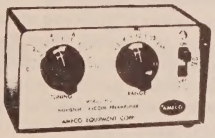

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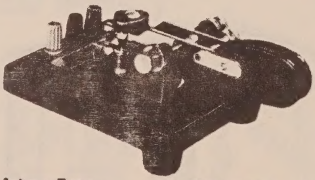

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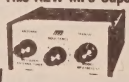

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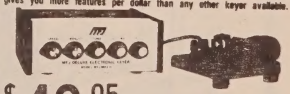

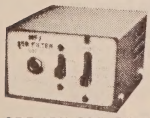

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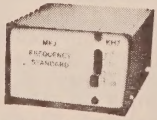

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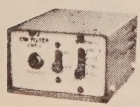

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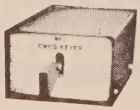

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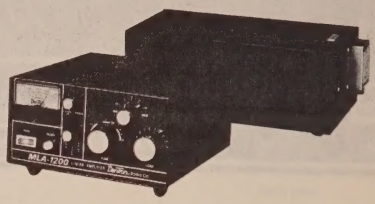

The MLA-1200 is a compact KW designed to fill the gap between your barefoot transceiver or transmitter and a full power 2 KW amplifier. A single 8875 external-anode ceramic/metal triode, (the same revolutionary tubes that power the MLA-2500) yields 1200 Watts PEP SSB and 1000 Watts DC CW with as little as 70 Watts drive. (An automatic swamping circuit prevents damage to the final if more than 100 Watts drive is applied to the MLA-1200.) There are scores of features common to both the MLA-1200 and MLA-2500, like forced-air cooling, all-steel chassis construction with tight fitting black wrinkle finish cabinetry, a plug-in PC board for metering, ALC, and mandatory warm-up timing. The MLA-1200 is the same size as our Super Tuner (just 10" W x 6¼" H x 10" D), and weighs only 10 pounds! Twin outboard power supplies are available for AC or DC operation, with the MLA-1200's low filament current drain characteristics allowing for standard 6 foot cabling between units. Both supplies are constructed of high quality, high current components, and are designed for a lifetime of trouble-free operation.

MLA-1200 - $399.50
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- 1000 Watts DC input on CW, RTTY, or SSTV
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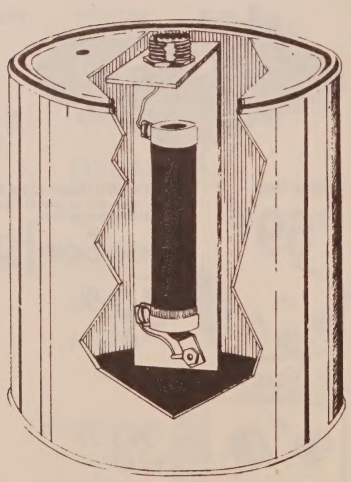

The Amateur population is growing at an unprecidented pace. In a word, Ham Radio is booming . . . and with the tremendous growth of our hobby, our bands are getting more and more crowded. With wall to wall QSOs there is no more room for on-air tune-ups . . . it is time for us to tune up off air, and minimize interference to on-going communications. Until now dummy loads were either super expensive, or exasperating exercises in futility . . . since the search for suitable cooling oil often lead to a dead end. Now there is an economical alternative . . . the new DenTron Big Dummy. A full power dummy load, the Big Dummy offers a flat SWR, full frequency coverage from 1.8 to 300 MHz, and high grade industrial cooling oil furnished with the unit . . . no more frustrating searches, or substitutions! What's more, the DenTron Big Dummy is built to last . . . it comes fully assembled and warrantied. So join the Big Dummy club, help cut the QRM factor, and no one will call you a big dummy again!

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weekend, and a nice Thanksgiving and a nice Christmas . . . . . if I don't talk to you again before then. 73's again, and again I really enjoyed it, and don't work too hard and take it easy. We'll see you on down the old log. . . . . 73's and good luck and good DX. So until next time, this is K4&&& signing with WA4%%% after a short, but very enjoyable QSO. 73s old buddy!

Good night, Phred, K4&&& this is WA4%%% clear.

. . . . . QRZ QRZ QRZ QRZ on sixteen seventy six, QRZ QRZ QRZ, this here's K4&& and-a & looking for a signal report on my new antennas. . . . . QRZ QRZ QRZ QRZ the repeater, QRZ QRZ QRZ!

NC AMATEUR LICENSE PLATES TO CONTAIN "AMATEUR RADIO"

The North Carolina Dept. of Vehicles will have the words "Amateur Radio" inscribed at the top of special Amateur Call Sign Plates for 1978. Heretofore, the plates for the past two years have had the slogan "First in Freedom". A letter to the Division by Rae Everhart, W4WAU inquiring as to why "Amateur Radio" could not be substituted in place of the regular slogan on Amateur Call plates, resulted in a letter from Mrs. Nancy Davis, supervisor, special License Plate Unit. She said: "It has been decided by the Office of the Director of Registration, that we will this year, place the words "Amateur Radio" in the center top middle of the 1978 license plates along with other types of identifying words on the other special plates that are issued by this Division."

Everhart noted in his letter to the Division that special plates for other services were identified this way. They included, Senator, House, National Guard, CAP, Horseless Carriage, etc.

Congratulations to W4WAU in his effort.

BRIARPATCH MOUNTAIN REPEATER A SCENIC LOCATION

The Briarpatch Mountain repeater is located some 3440 feet above sea level. (See Journal Cover for pictures) The repeater is located just west of Galax, Va. near Fries. The machine sponsored by the Briarpatch Mt. ARC operates on 69-09 and gives excellent coverage in S.W. Virginia and N.W. North Carolina. The machine operates 24 hours a day, and continously is linked with WR4AFE repeater on 28-88 in Salem, Virginia. The link, one of the first in the western parts of the States, extends the coverage areas as well as activity for both repeaters.

The Briarpatch repeater is a G.E. Progress Line, running 40 watts into a North Shore RF Technology duplexer. Antennas are two Newtronics Hustler 5 db base station antennas using horizontal separation. I.D. is a HAL Communications unit. COR and timers are of homebrew vintage. Owner of WR4AHR is Roy Wright, K4AXQ. Officers of the Club are Phil Berry, WA4SIW, Pres., Phil Sexton, WB4ZXC, Treas., Carlos Wright, WA4EPX, Sec., and Ed Dalton, WA4DSI and Buford Underwood, WA4DFH, Trustees. *(Cover Photos of Briarpatch repeater, building and antenna by Ed Dalton, WA4DSI).*

LETTER TO CVRA FROM USER

Dear Sir:

During a recent trip through North Carolina and Virginia I made extensive use of repeaters ---they made the trip an enjoyable one. As I mentioned to some of the guys I worked on the repeaters, I'm sure I used up far more than $2.00 worth of repeater---so, as a token of appreciation, anyway, please accept my application for associate membership in CVRA. Thanks again for many fine QSO's.

Signed Ed Dunn, W4NZW

ONCE UPON A TIME LONG BEFORE FM REPEATERS

Once upon a time, there lived a scattered group of persons who wanted desperately to talk with other persons who lived in the far-away berry patches. After much deliberation, they selected one of their clansmen who just happened to live atop a big hill and who had a big mouth . . . . and excellent hearing. The one in the valley yelled remarks to the top of the hill where the top man then repeated what he heard so that all listeners, everywhere would know what was being said from here and there.

Now it happened that some individuals could not hear the voice from atop the hill in too good fashion. Also, some of the traveling salesmen, riding their donkeys, remained unanswered because their voices fell upon empty air from some distant valley. There were some souls in some geographical spots that had been taught to whistle just right before they yelled to the re-sayer. Unless he recognized a certain whistle, he refused to do any hollering for them.

All in all, it was a happy experience for most folks. In fact it was suggested that the idea he put upon a stone tablet and preserved for posterity. It was done. **(From Mobile News, Journal of the ARMS, July, 1977, Purley, Surrey, England)**

NORTH CAROLINA QSO PARTY DECEMBER 3rd - 5th

North Carolina QSO Party, sponsored by the Alamance Amateur Radio Club, Inc., from 1900Z Dec. 3 through 0100Z Dec. 5. Suggested frequencies are plus/minus 10 khz: cw, 3560 7060 14060 21060 28060; Novice, 3720 7120 21120 28120; ssb, 3900 7270 14290 21390 28590. OUT- OF- STATE stations transmit RS(T) and state, province or country. NC stations send RS(T) and NC county. Out-of-state stations count 1 point for each NC contact (same station worked on different band, mode, or in different NC county, counts as new contact); multiply by the total number of NC counties worked for final score. NC stations count 1 point for each contact, multiply by total of states, provinces, foreign countries for final score. NC mobiles use the number of counties operated FROM for additional multiplier. Your log must be signed, none can be returned. Log must show RS(T)s, bands/modes, time (Z), state, province, country or NC county. On a separate sheet please show name, call and mailing address plus your total score and where you operated from. In the case of multi-operator stations, this sheet must also list the call of the operators. Awards. Logs must be postmarked no later than Jan. 10, 1978 and sent to: ALAMANCE ARC INC., 2822 WESTCHESTER DR., BURLINGTON, NC 27215.

---

for cooperation, helpfulness, and friendliness of the repeater users in the three states. That means you! You are the ones on the air and the ones who have made such a fine name for this area of the country. Sure, we have had a few problems and we're not perfect, but on the whole these problems have been handled and usually in the spirit of "What's best for all." I feel that you members, the people who are the CVRA, should receive a great deal of the praise for making the repeater situation in this area one of the best in the entire country.

Congratulations and keep up the fine work!

VHF OPERATING WHILE VACATIONING IN EUROPE

--by Bill Page;WA4LWX

A year ago it was my good fortune to make a three week trip to Europe with enough advance notice to obtain reciprocal licenses in Switzerland, Austria and West Germany. This was to be a mostly bus trip with only overnight stops -- never more than two nights -- so it ruled out any HF activity. We decided to take two Standard 146A handheld transceivers and a Larsen 5/8 wave magnetic mount whip for hotel use.

Obtaining the licenses was fairly straightforward. QST publishes a list of reciprocal licensing authorities from time to time and it was simple to write for the forms, complete them and send in the fees involved. The easiest way to pay for a small licensing fee, by the way, is to purchase an international money order at your local post office. It's cheaper than an international bank draft for small amounts. But you do have to find out in advance what the value of the foreign currency is in relation to the US dollar.

For VHF-ing in Europe, a copy of G3UHK's INTERNATIONAL VHF-FM GUIDE, first published in 1976, is a must. It contains reciprocal licensing info as well as current material on repeaters and simplex activity in all countries where this info is available. We found it to be quite accurate considering the world-wide amateur urge to keep improving and changing things.

Just before leaving for Switzerland we discovered that the Swiss and West German repeaters require a 1750 Hz tone burst to access and there wasn't time to work this into the Standards so we took one of the harmonics slide-flute-whistles hoping to be able to whistle up 1750 Hz. (It didn't work.)

In October 1976 there were 8 VHF repeaters in Switzerland and like all VHF activity in Europe, it's limited to the 144-146 MHz area. Actually, I.A.R.U Region I has adopted 10 standard VHF repeater channels designated RO thru R9 starting with inputs at 145.00 MHz and separated by 25 KHz running to R9 at 145.225 MHz. The repeater pairs are separated like ours by 600 KHz so that the output of RO is at 145.600 and running up thru R9 at 145.825. Simplex operation takes place on channels designated S20 thru S24 with S20 being 145.500 the calling frequency, S21 at 145.525 a working channel. s22 at 145.550 the principal working channel, etc.

So in addition to needing a reciprocal license, and a 1750 Hz tone encoder, to operate a 2 meter VHF FM in Europe, you also need a rig that will operate in the 145 MHz band. With distances being so much shorter there (it's not just the metric system) and with elevations of the kind available in Switzerland, Austria and Southern German, it's no wonder the VHF activity is on the increase. In our Zurich hotel we could hear repeaters on just about all our pairs; DBOZUon the Zugspitze came in full quieting and for those of us Yankee types unaccustomed to hearing DX call signs on VHF, Switzerland, especially on the mountaintops with a hand unit, provides a multitude of countries from the same location.

We did more listening than transmitting but it was fun to identify thru a local repeater as we motored thru Klagenfurt, Vienna and Innsbruck, Austria where the repeaters are carrier access.

The final portion of our trip was a three day and night cruise down the Rhine from Strasbourg, France to Amsterdam. There are probably more VHF repeaters in West Germany

than all the rest of Region I put together so we were never out of touch with several.

Of course on the continent, it helps if you have a working knowledge of at least one of the languages other than English -- this is probably more important in VHF than in HF activity. But amateurs have a way of communicating and language is no great stumbling block. Probably the highlight was a contact with a W2 who was motoring with his wife South of Vienna also using a reciprocal OE1 callsign via the Hohe Wand OE3XHW repeater.

While we enjoyed the repeater activity, next trip we'll take greater simplex capability as there appears to be an equally fine opportunity to meet local amateurs via simplex when the local repeater is busy.

(Next installment - Four Weeks with VHF FM in UK)

REPEATERS DOING SOME TESTING ON LINKING IN N.C.

The 28-88 repeater in Raleigh, owned by K4ITL, Danny, has been doing some experimental linking with other repeaters. During the month of September, Danny utilized equipment built on his end to link with the 07-67, WR4AKY Burlington repeater. Users for either repeater (Raleigh or Burlington) could link or unlink the repeaters with audio tones from their tone pads.

During October, Danny has swung his linking to the east and has with the approval of the ENC Repeater group, linked his WR4AOE Raleigh machine with the 16-76 Grifton machine. Again, the linking equipment was on the Raleigh side, and tone could link or unlink the machines. Presently listeners to the linked repeaters to Raleigh have no way of knowing the linkup is made except when they hear users of the Raleigh repeater. Raleigh listeners can hear the linked repeater I.D. through the Raleigh repeater and know when the linkup is made. Danny reports the system will be further perfected in the future.

Previously the only other linking in the North Carolina area was the 69-09 Briarpatch and 28-88 Roanoke repeaters, and the Salisbury 13-73 linked with the Mocksville 6-meter repeater. Some linking during net periods has been done by 72-12 in Greensboro, utilizing a Reverse Autopatch and W.A.T.S. line, which has proven quite effective for net periods, but is not practical for long periods of linking with out-of-town repeaters.

Linking procedures will be picking up in coming months, as repeater owners find ways to improve linkage at more moderate costs. Buster Brafford, WB4ZIN in Burlington, is reportedly working on a repeater to be used for linking purposes only. He said the repeater can be called up, and linked with any repeater desired. The machine is only in the planning stages at present and Buster said there is considerable work to be done in working out the bugs in the system.

Repeater groups coming up with new ways to link with other repeaters are urged to write our Technical Editor, Watson, WB4EXW and describe the link The Journal can publish these ideas for use by all repeater owners in the future. (K4MOB)

signal, carefully tune it in and peak it on the S meter. Now switch the CW filter on and repeat the signal. Make sure there is no audio signal being fed to the FM rig. Next switch the audio oscillator on, turn up the volume just a little. Tune the audio oscillator to about 1000 hertz and very slowly increase the frequency watching the S meter. If your rig was factory adjusted the S meter should start to drop somewhere around 2000 hertz. Adjust the audio oscillator frequency until the S meter shows the lowest reading. It should be possible to obtain an almost complete null of the carrier. (reading on the S meter). If for some reason the null was obtained at some frequency other than about 2100 hertz, determine the audio frequency that nulled out the carrier and multiply that audio frequency in Khz times 2.4 to determine the deviation. For example let's assume that the carrier nulled out with an audio frequency of 2800 hertz, then the deviation would be 2.4 times 2.8 for a deviation of 6.72 khz.

If the deviation is not set at 5 khz then the easy way to set it to 5 khz is to set the audio oscillator at 2100 hertz. Turn the deviation control off. Then gradually increase the deviation control until the carrier is nulled out (minimum S meter reading on low bander). You have now adjusted the FM rig for 5.04 khz deviation. Now you will have to admit that is pretty darn simple.

It is possible to use a loudspeaker on the audio oscillator and place a walkie talkie in front of it to feed the audio in, but most loudspeakers generate a whole array of stray frequencies and extreme caution must be used. But it can be done. Also some touch tone pads give out pretty good signals when single toned and one of the frequencies could be used to make the deviation check. For example using the second null point, single tone the touch tone pad to produce 941 hertz (on telephone pads push the * and 0 at the same time.) Adjust the deviation control to the second null point and the deviation is 5.52 times 0.941 which equals 5.2 khz deviation.

I do have some information on building a low cost simple two meter converter if you are interested. We could publish the data later. Buying all new parts I built mine for just under $20.00.

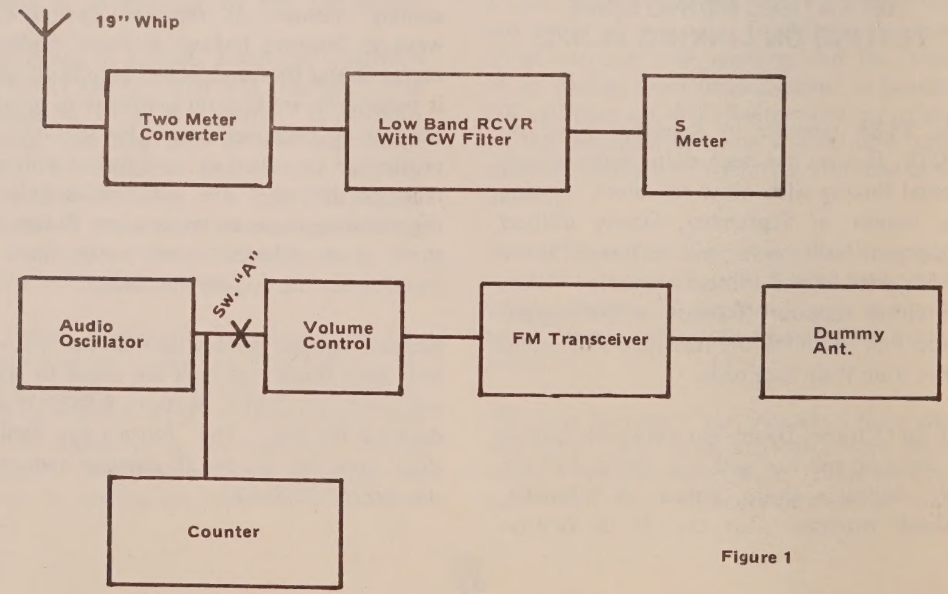

Figure 1

Cool It (cont'd)

against using anything except the STANDARD 34-94, 22-82, 28-88 and 16-76. Time has proven all these people wrong. Repeaters who have gone split/split today are enjoying the nearest to clear channel, and interference free operation that we will ever see again on two meters. There's no worry today about going to a split/split gentlemen . . . . . if your repeater is a popular one, no ham user will hesitate to get crystals or whatever to move with you. . . . . .if you're afraid to move, perhaps you're afraid of losing your users. If they don't like your machine, nothing is going to hold them to you anyway. . . . . . so there! When interference hits you. . . . . try cooling it and go cautiously . . . . . .If you conduct yourself in a gentlemanly manner, your opponent will probably do so also. It's human nature . . . . . .you can't cut a man down, and then expect to negotiate with him.

So again we say. . . . . ."COOL IT" . . . . . You MUST. . . . . .Then we all benefit!

--Wayne C. Williams, Editor

Renewal Time (cont'd)

Many hours are spent by CVRA officials, many telephone calls, and many miles driven to help repeaters in trouble. The CVRA staff heretofore has NO BUDGET to operate, telephone calls and stamps can be reimbursed, but trips, meals and time is donated by the officers. The CVRA is far from being perfect. There are complaints by repeater owners about a select group running things all the time. My answer to that might be that if you don't like the way things are run, JOIN UP, VOTE IN OFFICERS who you think will do a good job, and finally . . . . . STOP COMPLAINING and participate.

Users of repeaters! You can check the directory . .contact your repeater owner and stronly urge he join the CVRA, represented equally by ALL THREE STATES can do wonders for our UHF-VHF operation in the future.

We're growing. sure! But how many repeaters still don't belong. UNITED we have CLOUT to stop those strong-headed individuals who think they can do anything they please, regardless of who they disturb or interfere with. We can be UNITED only if EVERY repeater who feels this way . . . . . gets off his duff and JOINS. Our membership stands at 107 full member groups. This is an all-time high, but STILL only about 70% of the repeaters in the three state area. In February, let's take those "N"s off the repeaters and EVERYONE BE A MEMBER. You'll get an application in this issue, USE IT!

--Wayne C. Williams, Editor

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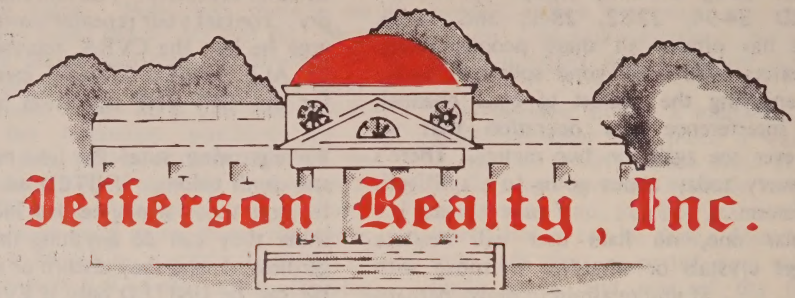

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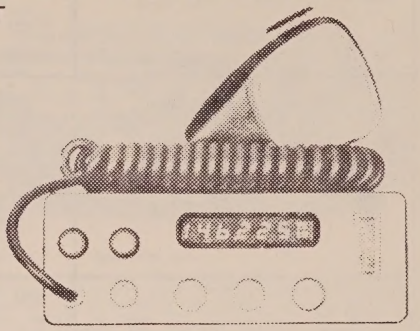

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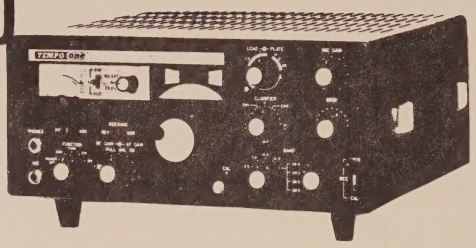

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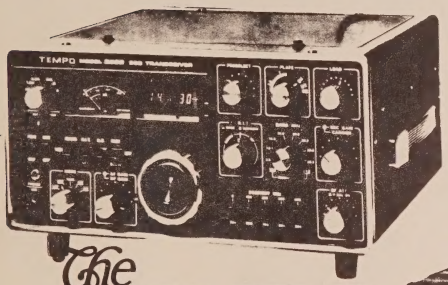

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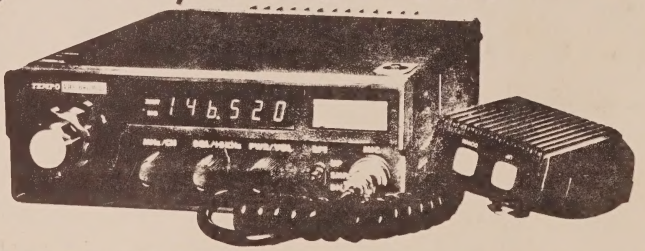

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Bertie WA4UQC	Granville WA4JCS	Polk WB4YAO
Bladen K4JEX	Guilford K4CJZ	Robeson K4NUG
Buncombe WA4VNV	Harnett WB4VUS	Rockingham WB4JLP
Burke K4AI	Haywood WB4LDO	Rowan WB4BZO
Cabarrus W4DSU	Henderson WB4YAO	Rutherford K4IOF
Caldwell K4AI	Iredell WD4FFX	Scotland WB4SXX
Carteret W4OFO	Jackson W4VOX	Stanly WA4ZIA
Caswell WB4ZIN	Lenoir WB4UOU	Surry WB4ULP
Catawba WB4AVG	Macon K4AIH	Swain K4AIH
Cherokee K4AIH	Madison WA4VNV	Transylvania WB4YAO
Clay K4AIH	Martin WA4UQC	Union WA4YMU
Craven WB4CCU	McDowell K4IOF	Wake W4FMN
Cumberland WB4TRW	Mecklenburg WB4CES	Watauga K4AI
Dare W4PCN	Mitchell K4IOF	Wilkes WA4UOC
Durham W4LEN	Nash WA4UQC	Yadkin WA4IAG
Edgecombe WA4UQC	Onslow WA4PDQ	Yancey K4IOF
Forsyth WB4KCS	Pamlico K4BGD	

Is your county on this list? Why isn't your county privileged to be served by an organized Emergency Prepardness group? Let's get all 100 North Carolina counties covered.